AMERICAN ECCLESIASTICAL REVIEW.

VOL. X.—MARCH, 1894.—NO. 3.

THE MOSAIC HEXAEMERON IN THE LIGHT OF EXEGESIS AND MODERN SCIENCE.

MOSES AND SCIENCE.

PROMINENT, if not chief, among the questions that from time immemorial have engaged the attention of mankind are those pertaining to the origin and constitution of this world of ours. All nations and all peoples, with the exception of those in the lowest scale of intelligence, have had their peculiar theories regarding geogony and cosmogony, to which they have clung with greater or less tenacity. Some of these theories were very elaborately worked out and contained many elements of truth; others, on the contrary, were absurd and ridiculous in the extreme, and afford us the most striking evidence possible regarding the simplicity of the people who accepted them, and their utter ignorance of the commonest laws and phenomena of nature.

According to the Sandwich Islanders all was originally a vast ocean. It was then that an immense bird deposited on the waters an egg from which arose the islands of Hawaii. But this idea of a world-egg is not peculiar to the Hawaians. It obtains among the Polynesians generally and has prevailed among many peoples of the Old World as well. We find special prominence given to it in the Ordinances of Menu, wherein the Hindu cosmogony is developed at length. Brahma, the progenitor of all the worlds, was, we are informed, born from a golden egg. In this egg the supreme power remained for a divine year. Each one of the three hundred and sixty days of this divine year was equal to 12,000,000 of our years. After this long period the cosmic egg broke, and from its fragments were formed the heavens and the earth, the atmosphere and the abyss of waters.

The earth, according to the *Shastras*, "is a circular plain, resembling a water-lily. Its circumference is four hundred millions of miles. It is borne upon the backs of eight huge elephants; the elephants stand upon the back of an immense tortoise, and the tortoise upon a thousand-headed serpent. Whenever the serpent becomes drowsy and nods, an earthquake is produced. . . . . The earth consists of seven concentric oceans and as many continents. They are arranged in regard to each other like the waves produced by throwing a pebble into water. The first ocean, the one nearest the centre, is filled with salt water, the second with milk, the third with the curds of milk, the fourth with melted butter, the fifth with the juice of the sugar-cane, the sixth with wine, and the seventh with fresh water. Beyond the seventh ocean is a land of pure gold, but inaccessible to man; and far beyond that extends the land of darkness, containing places of torment for the wicked.

"The continent at the centre of the earth is 250,000 miles in diameter. From its centre, Mount Meru, composed entirely of gold and precious stones, rises to a height of 600,000 miles. Unlike all other mountains it is much the largest at the top. It is crowned with three golden summits, which are the favorite residences of Brahma, Vishnu and Shiva. Near these summits are the heavens of many of the inferior gods. One of them is described as being 800 miles in circumference and 40 miles in height. Its dome is supported by pillars composed of diamonds, its numerous palaces are of pure gold, and it is so ornamented with brilliant gems, that its splendor exceeds the brightness of twelve suns."[1]

On the western slope of Mount Meru are found beautiful stretches of country, in which men, who are of the color of gold, live to the age of 10,000 or 12,000 years.

According to Mahavharata, "The beings on the earth are divided into two classes—the animate and the inanimate. The animals constitute fourteen species, seven of which—monkeys, bears, elephants, buffaloes, wild boars, tigers and lions—are wild in the forests; whilst seven others—men,

1 Historic Incidents and Life in India, by Caleb Wright, and J. A. Brainerd, pp. 26–27.

sheep, goats, cows, horses, asses and mules—live with men in towns. Man is the first of domestic animals; the lion is the first of savage animals. There are five species of plants."[1]

In the time of Homer, about 900 B. C., it was believed that the earth, surrounded by the river Oceanus, filled the lower half of the sphere of the world, whilst its upper half extended aloft; that Helios, the sun, extinguished his fires every evening and re-lighted them the following morning, after having immersed himself in the deep waters of the ocean.

Thales and the Stoics, and those of their school, we are informed by Plutarch, taught that the earth is spherical, like a ball; Anaximander maintained that it was in the form of a stone column. Many fancied it to have the form of a cube, and to be attached by its four corners to the vault of the firmament. Others, among them Leucippus, imagined it to have the shape of a drum, while others still declared it to be a disc, protected by the river Oceanus, or guarded by a serpent which encircled it. Epicurus, who accepted the popular belief, taught that the stars were extinguished when they set and relighted when they rose again; that the earth is held in place by cords or ligaments, just as the head is connected with the neck or trunk. To explain the revolution of the heavenly bodies, Anaximander taught that they were fixed in crystal spheres. Anaximenes, a disciple of Anaximander maintained that the earth is flat like a table. He likewise held the same view regarding the sun. In accordance with the generally accepted opinion of his age, he thought that the stars were fixed like nails in a solid revolving sphere, which was invisible by reason of its transparency. In order to account for the peculiar motions of the sun, moon and planets, Pythagoras devised his famous theory of *eccentrics and epicycles*,[2] a theory that, at a later date, was adopted and developed by Ptolemy and accepted as the true explanation of planetary movements until the time of Copernicus. To meet new difficulties presented by the peculiar motions of the

1 Barthelemy Saint-Hilaire, in the *Journal des Savants*, Jan., 1868, pp. 33–34.

2 Cf. Histoire de l'Astronomie, par Ferdinand Hœfer, p. 107.

sun, moon and planets, Eudoxus, of Cnidus, increased the number of crystal spheres to twenty-six. But these spheres, which were regarded as so many heavens, arranged one inside of the other, were not yet sufficiently numerous to account for the many and varied motions of the planets. The number was therefore augmented until astronomers recognized no fewer than fifty-six of these solid, revolving, invisible, transparent spheres.

Plato regarded the heavenly bodies as animated beings. The world, according to him, was but an animal, and its spherical form was the type of perfection. "The Creator," he tells us in the Timaeus, "gave to the world the figure which was suitable and also natural. Now to the animal which was to comprehend all animals, that figure was suitable which comprehends within itself all other figures. Wherefore he made the world in the form of a globe, round as from a lathe, having its extremes in every direction equi-distant from the centre, the most perfect and the most like itself of all figures; for he considered that the like is infinitely fairer than the unlike. This he finished off, making the surface smooth all round for many reasons; in the first place, because the living being had no need of eyes when there was nothing remaining outside him to be seen; nor of ears when there was nothing to be heard; and there was no surrounding atmosphere to be breathed; nor would there have been any use of organs by the help of which he might receive his food or get rid of what he had already digested, since there was nothing which went from him or came into him; for there was nothing beside him. Of design he was created thus, his own waste providing his own food, and all that he did or suffered taking place in and by himself. For the Creator conceived that a being which was self-sufficient would be far more excellent than one which lacked anything; and, as he had no need to take anything or defend himself against anyone, the Creator did not think it necessary to bestow upon him hands, nor had he any need of feet, nor of the whole apparatus of walking; but the movement suited to his spherical form was assigned to him, being of all the seven that which is most appropriate to mind and intelligence;

and he was made to move in the same manner and on the same spot, within his own limits revolving in a circle. All the other six motions were taken away from him, and he was made not to partake of their deviations. And as this circular movement required no feet, the universe was created without legs and without feet."

The foregoing theories of geogony and cosmogony are sufficient to show how hopelessly at sea even the greatest philosophers have been regarding the origin and constitution of the world.[1] It were easy to adduce numerous other similar theories, but space forbids. We look upon them all as childish and absurd, and justly so. Nothing could be more preposterous according to our views of nature than some of the cosmogonic notions entertained by the philosophers of Greece and India. Even the "divine Plato," did not, as we have seen, escape falling into the most ridiculous conceptions of the universe. True it is, that most of the theories mentioned were formulated in the infancy of science. Their authors had not at their disposal the delicate instruments of precision which now enable the physicist and astronomer to solve with ease many of the problems which the sages of antiquity tackled in vain. Being deprived of the geographical knowledge which is now ours, we need not be surprised that they entertained the most erroneous and foolish ideas respecting the form and size of the earth and the creatures which inhabit it. Chemistry was then unknown, and geology was not thought of until some thousands of years later. Fancy was substituted for fact, and the most extravagant vagaries were seriously offered in lieu of sober truth.

Contrast we now the cosmogonal fantasies and speculations of even the most eminent exponents of ancient Hindu and Greek thought, with a system of cosmogony which dates back as far as—if not farther than—any of those of which I have spoken.

"In the beginning," says Moses, "God created heaven and earth." How simple, and yet how sublime! By a *fiat* of omnipotence, by a mere act of his will—not with *a*

1 Jowett's Translation.

thought, as the Hindus taught—God created the world and all that is in it, from nothing.

The first chapter of Genesis so impressed the great pagan rhetorician, Longinus, that he declared: "The legislator of the Jews, who was not an ordinary man, having strongly conceived the greatness and power of God, expressed it in all its dignity at the beginning of his laws, in these words: God said, let light be, and it was; let the earth be made, and the earth was made." Reflecting on the same sublime declarations of Genesis, the illustrious scientist and scholar, Ampère, did not hesitate to affirm: "Either Moses possessed as extensive a knowledge of the sciences as we now have, or he was inspired." "The first page of the Mosaic account of creation," declares Jean Paul, "is of greater import than all the ponderous tomes of naturalists and philosophers." It gives us the first clear statement of creation by an Almighty and self-existent Being, and furnishes us views of God and His creatures that are quite different from those which are at the foundation of the mythologies and false philosophical systems of the ancient world.

But the "Mosaic idea of creation—an idea to which the sages of India, Greece and Rome never attained—is something with which we have been familiar from our infancy, and for this reason we do not attach the importance we otherwise should to the inspired words of Genesis." If, however, we give but a cursory examination to the pagan ideas which prevailed on the subject of creation among the peoples of Egypt, Phœnicia and Babylon, at the time of Moses, and even long afterwards—for the religion of Brahma still affords us a striking instance in point—"We shall," says Haneberg, "realize the full importance of the Mosaic dogma regarding God, the world and man." In Genesis is an entire suppression "of that irrational theory, so generally accepted in antiquity, of a divine being who was a slave to fate, and who acted only through necessity or caprice. In it is banished the terrible apprehension of a blind tyranny of chance; of a maleficent power, the enemy of man; or of other similar phantoms that weighed down upon paganism like a mountain.

Delivered from these vain fears, man may look at creation and heaven with confidence, because he knows that a personal God, living and powerful, is the Creator of the Universe."[1]

"The Mosaic cosmogony alone," declares Delitzsch, in his *Commentary on Genesis*,[2] "proposes to us the idea of a creation from nothing, without eternal matter and without the intervention of any intermediate being or demiurge. Paganism, it is true, permits us to catch a glimpse of this idea, but it is much obscured. Pagan cosmogonies either suppose pre-existing matter, that is, dualism, or they substitute emanation for creation, and then fall into pantheism."

Even such a rationalist as Dillman, when speaking of the cosmogony of Genesis, is forced to confess that "It does not contain a single word which is unworthy of the thought of God. From the moment an attempt was made to portray, in language intelligible to man, the work of creation, something that will ever remain a mystery to us, it has been impossible to outline a picture which is grander or more worthy. With reason, then, does one see in it a proof of its revealed character. Only there where God had manifested Himself could He be delineated. It is the work of the Spirit of Revelation."[3]

Contrasting the cosmogonies of the ancient Pagan world with that of Genesis, the illustrious Donoso Cortes truthfully observes that "in spite of marked differences, they all have this in common, that they exhibit an infinite disproportion between the principle, the mean and the end; between the agent, the act and the work; between the Creator, the act, His creation and the creature. In all of them the universe . . . is superior in dignity and beauty to the Creator who made it by His will; to the agent of which it was the work and the principle which gave it being. This should not surprise us when we consider that the universe is a creation of God, whilst its Creator, according to all these cosmogonic

1 *Geschichte der bibl. Offenbarung*, p. 12.]
2 P. 71.
3 Genesis, p. 9.

systems, was a creation of men. What wonder then if the work of the Creator was superior to the work of the creature? . . . Where shall we find a man who, being part of the universe, is able to form a conception of a God who is greater than the universe, if he be not inspired by God? . . . Who can such an one be, if it is not Moses?"[1]

But Moses is not satisfied with the simple declaration that God in the beginning created heaven and earth. He descends to details. He tells us that all that exists, all that we can see, all creatures, the sun, the moon and the stars, the fishes of the sea, the birds of the air, the animals that roam the earth, the flowers that delight the eye, the fruits that are grateful to the taste, man—the lord of creation—are the works of God. And because they are the works of God he also tells us that "God saw that it was good."

And the reason for these detailed and explicit declarations is manifest. The Hebrew people had lived among idolaters and were surrounded by people who gave divine worship to many of God's creatures. He wished to impress upon their minds that neither the sun, nor the moon, nor the stars, neither any animal, nor the earth which affords it nourishment nor any of the elements are God, as was supposed by the Sabianism of the Orient, especially of Chaldea; by the worship of animals in Egypt, by the divine honors paid to the earth by the Romans, Pelasgians and Germans, and by the cult of the fire-worshippers of Greece and Persia. All these things, the objects of the adoration of the heathen, are the works of God. There is no power opposed to God which is equal to Him. Neither is matter, as such, according to the later opinions of the Platonists, the seat of evil. Everything is the work of God, and everything, therefore, is good.[2]

From the foregoing it is manifest that the prime object of the Mosaic narrative, like that of all revelation, was a religious one. "The Gospels," says St. Augustine, "do not tell us that our Lord said: "I will send you the Holy Ghost; to

1 Quoted by Padre Mir in his learned work, *La Creacion* p. 29.

2 Cf. Hettinger's *Apologie des Christhenthums*, Chap. iv, Vol. 3.

teach you the course of the sun and moon; we should endeavor to become Christians and not astronomers." So it is with the Mosaic account of creation. Its purport is not to teach geology, physics, zoology, or astronomy, but to affirm in the most simple and direct manner the creative act of God and His sovereignty over all creatures. Its object is not to anticipate any of the truths of science or philosophy, but to guard the chosen people of God against the pernicious errors and idolatrous practices which were then everywhere prevalent.

The Holy Father, in his recent admirable Encyclical on the Study of the S. Scriptures, clearly brings out this idea when he says: "It must be borne in mind, first of all, that the sacred writers, or rather the Spirit of God which spoke through them, deemed it inadvisable to teach men these things, that is the inner constitution of visible objects, since this conduces in no wise to salvation; and accordingly these writers, instead of entering into an investigation of nature, sometimes described and explained things in a certain figurative style, or in ordinary language such as is employed among men, even of deep learning, at the present day."

All the cosmogonies of the ancient world—that of Moses excepted—were, as we have seen, erroneous not only in the false views they gave of God, but also in the notions which they displayed of nature and her laws. One and all they have long since been rejected by science as ridiculous and absurd. Not so, however, with the cosmogony of Genesis. The more closely it has been examined in the light of the science of these latter days, the more has it been found to harmonize in the most remarkable manner with the latest results of scientific investigation. The words of the great Cuvier, who wrote in the early part of the century, are as true now as when they were first penned—"Moses has left us," says the illustrious naturalist, "a cosmogony, the exactitude of which is daily verified in the most admirable manner. Recent geological observations are in perfect accord with Genesis regarding the order of appearance of the various forms of organized beings."

Again, God not only created the world out of nothing, but He gave it its present form during a succession of epochs. According to Genesis, as well as according to science, He first created primitive, nebulous matter, and after a long, indefinite period of time He fashioned from this matter, "without form," all the myriad forms of the organic and inorganic worlds. And, according to Genesis as well as according to science, the Creator proceeded from the simpler to the more complex. He first created light, without which organic development, as we know it, is impossible. He then separated the earth from the waters of the ocean and prepared it for the abode of terrestial life. Plant life precedes animal life in the scheme of creation and the waters of the deep are peopled before the dry land is inhabited. In both the vegetable and animal kingdoms the lower forms of life precede the higher. The culmination of the work of creation was man, whose apparition, according to both revelation and science, was posterior to that of all other creatures.

Here we have in a few lines a resumé of some of the most important conclusions of modern science respecting the origin of the earth and its inhabitants. And the Mosaic account, be it remembered, was written long before any attention was given to the natural or physical sciences and many thousand years before geology, paleontology and astronomy had achieved those triumphs which will render this nineteenth century of ours forever memorable.

And not only this. Moses makes statements in his narrative that were for many long ages regarded as contrary to science and philosophy, declares truths which, humanly speaking, could not have been known before an exhaustive study had been made of the past life of our globe, and before the telescope and the spectroscope had given us the knowledge we now possess concerning the origin and constitution of the material universe.

What Moses declared in the infancy of our race and what science now affirms not only was not accepted as true in the earlier ages of the world but it was rejected as positively erroneous. The various profane cosmogonies that obtained

from time to time among divers peoples were against it. Philosophers descried it as contrary to the teachings of science, and rationalists and unbelievers fancied they discovered in its supposed contradictions an argument against the inspiration and authenticity of the Sacred Record. But as Genesis was more carefully scrutinized and as science advanced, it was found that a remarkable harmony existed between the two, and that far from being contradictory they both told the same story, although in different languages. The conclusion, therefore, is inevitable. There is something in Genesis above man—something supernatural—something divine. In a word, Moses was inspired. In the words of Linnaeus: "It is materially demonstrated that he did not write and could not write except under the inspiration of the author of nature—*neutiquam suo ingenio sed altiori ductu.*"

I would not, however, have it inferred from what has been said that there are no difficulties in Genesis, or that I am disposed to underrate their magnitude. Far from it. What I do maintain and insist on is that there is nothing in the Mosaic cosmogony that is contrary to any of the certain truths of science. Scientific theories without number have been formulated which were contrary to the teachings of the Mosaic narrative, but theories are not science. In the last century, especially, as well as during the present one, many of these hostile theories were based on geology and paleontology. "From the time of Buffon," wrote Cardinal Wiseman, more than fifty years years ago, "system rose beside system, like the moving pillars of the desert, advancing in threatening array; but, like them, they were fabrics of sand; and though in 1806 the French Institute could count more than eighty such theories, hostile to Scripture, not one of them has stood still, or deserves to be recorded." [1]

And more than this. All sorts of extravagant interpretations have been given to the first chapter of Genesis, some of which were even more absurd than the scientific speculations of which I have just spoken. But such commentaries are no

1 *Science and Revealed Religion.* Vol. I, p. 268.

more to be accepted as the last word on the Mosaic narrative than are the hypotheses and fantasies of scientists to be regarded as veritable science. That such theories and interpretations are discordant and contradictory is no evidence whatever of any discrepancy between the Mosaic cosmogony and the logical deductions from the known facts of science. Theories and conjectures may be at variance with one another, but science and the word of God, never.

I have said that I have no disposition to minimize the difficulties of the Mosaic narrative of creation, nor have I. I think one may safely assert that no one chapter in the Bible contains so many and so great difficulties as does the first chapter of Genesis. On no single chapter, probably, have the Fathers and schoolmen and commentators expended more time and learning, and in no instance have they exhibited a wider divergence of views than when endeavoring to explain this self-same chapter, and reconcile certain of its declarations with the known or supposed teachings of profane science.

And just here it may be observed that we could have no better illustration of the perfect liberty of thought enjoyed by the children of the Church, in all matters outside of positive dogma, than that afforded by the diversity of views entertained by saints and doctors respecting the true meaning of many controverted passages of the Mosaic cosmogony. Commentators have endeavored to accommodate the declarations of the Hebrew law-giver to the scientific notions of their time, and, as a consequence, we have in their interpretations a faithful reflex of all the speculations and vagaries that have at one time or another been put forth as genuine science. We often hear it said that believers in dogma and the Bible—especially Catholics—are so hampered by restrictions of all kinds that they are ever in a condition of intellectual thraldom. We are told that there are many questions in science that we, as Catholics, may not investigate, much less discuss, and that our religious beliefs forbid us to accept many of the demonstrated truths of science. I wish here and now to record in the most emphatic manner

possible a formal and explicit denial of each and every one of these imputations, and to declare that they are utterly without foundation in fact. The example of the Fathers and schoolmen, and the commentators of every age of the Church, gives the lie to such foolish declarations. In everything outside of revealed truth and the doctrinal teaching of the Church they have shown us that they were ever permitted the greatest degree of latitude in exegesis, and that they always enjoyed the greatest possible measure of intellectual freedom. They recognized all along that the prime object of the Bible is to save souls, and not to teach science; that its main purpose is, in the language of Cardinal Baronius, "to teach us how to go to heaven, and not how the heavens go." The learned Catholic historian and Orientalist, François Lenormant, expresses the same idea when he declares that the object of Scripture is not to inform us as to "how the things of the earth go, and what vicissitudes follow one another here below. The Holy Spirit has not been concerned with the revelation of scientific truths or with universal history. In such matters 'He has abandoned the world to the disputes of men'—*tradidit mundum disputationibus eorum.*"[1] In questions, then, of chronology, biology, astronomy, geology, ethnology and anthropology we must have recourse to reason and research, to observation and experiment. Induction and not revelation must be our guide in all such matters, except—and this is very rarely the case—when a certain and incontrovertible statement of fact in matters of science is made by the Sacred Text itself. The specific unity of the human race—taught both by the Bible and the Church—is a case in point.

It is a grave mistake, therefore, to regard the Bible, especially the first two chapters of Genesis, as a compendium of science, as so many have done. For, as Cardinal Newman observes, "it seems unworthy of the divine greatness that the Almighty should, in the revelation of Himself to us, undertake mere secular duties, and assume the office of a

1 *The Beginnings of History.* Preface.

narrator, as such, or an historian, or geographer, except in so far as the secular matters bear directly upon the revealed truth."

Catholics who have a correct knowledge of the teachings of their faith will not admit that they are in any way hampered in the pursuit of science by the exigencies of dogma. On the contrary, they claim and enjoy, in the truest sense of the word, the greatest mental freedom, a freedom that truth alone can give—a freedom that those who are outside the pale of the Church know not of—the freedom of the children of God.

In the case of a Catholic, "it is not," as Very Rev. Father Ryder truthfully remarks, "so much his freedom of investigation as his freedom from investigation that is controlled. He is bound to be rigid and exacting in his scientific method, to maintain cautiously all the reserves of doubt. He is precluded from that facile abandonment to the prevailing wind of doctrine which is so characteristic of our modern scientific world." . . . A Catholic man of science may be a specialist, but he is bound to be—nay, he can hardly fail to be—something more. He must know something of all the territories of science, their outlines at least, for he has a theology which is more than co-extensive with them all and which has a word to say of each, though it be only, as is commonly the case, to assure the student that here he is within his right, and that his way is clear."[1]

The faith of Catholics, consequently, far from restricting their liberty of research, gives it a vivifying principle which it could not otherwise possess. And far from circumscribing their views of nature, or giving them false notions of the laws and phenomena of the material world, it extends their horizon, and illumines the field of their investigation with a brilliance all its own. The mistake made by many in denying to Catholics liberty of thought in the study of science, is that they confound liberty with license. Revealed truth and dogma never do and never can conflict with science; neither

1 *The Proper Attitude of Catholics Towards Modern Bible Criticism*, in the *Catholic World*, June 1893, pp. 405, et seq.

are they incompatible with the most perfect intellectual freedom. They are, however, incompatible with intellectual license. They save the Catholic scientist from many errors into which those who are not guided by religious truth inevitably fall; they shield him from the blasts of false doctrine which the Eolus of error is ever sending forth from his cave, and enable him to steer clear both of the Scylla of ignorance and superstition on the one hand, and the Charybdis of agnosticism and materialism on the other. They protect him from flighty speculations which always issue in discomfiture. They hold him to the *terra firma* of true science, and, thus like Hercules, he is able to vanquish the Antaeus of fallacy and hallucination with comparative ease.

But let us now turn our attention to the teaching of the various schools of exegesis that have existed in diverse periods of the Church's history. A brief resumé of what they have severally taught will be not only interesting but instructive from several points of view. It will confirm what has been said concerning the liberty of thought accorded the children of the Church respecting matters outside of faith and dogma. It will show that while entertaining diverse and even contradictory opinions in matters of science, the Fathers and Doctors were always of one mind in everything that appertained to faith and revealed truth. And more than this; it will prove conclusively something that is generally ignored, if not entirely unknown, and that is that some of the grandest conceptions and generalizations attributed to modern scientists are in reality due to the early Greek and Latin Fathers. Most people are wont to credit to contemporary science much that belongs to Tradition and the School, and this because they have been taught to believe that all the ideas of the earlier commentators of Genesis were fantastical and contrary to the results of modern scientific researches. Even the cursory examination that we shall be able to make of the cosmogonic views of some of the Church's Doctors, especially St. Gregory and St. Augustine, will, I trust, effectively dispel these erroneous notions—notions which have so long obtained, even among those who

should know better—and demonstrates beyond any possibility of doubt, that we have in some of the Fathers, especially the two just named, the precursors of the most illustrious exponents of a true theory of the visible universe and of evolution of the various forms of terrestial life. We shall find that they have anticipated the noble conceptions of Descartes, Laplace and Herschel, and expressed them in words that cannot be misunderstood. And we shall likewise learn that they have laid down principles which are in perfect accord with the latest and most approved theories regarding the origin and constitution of the universe, and the development of the manifold forms of animal and vegetable life. I do not mean by this to assert that they had anything approaching the knowledge we now possess of the natural and physical sciences, because they had not. But what I do affirm, and this I shall insist on, because it is capable of the completest demonstration, is, that they had a clear conception of the nature of some of the most profound problems of science, with which the human mind has ever grappled, and which even now cannot be said to have received a complete solution. But more of this as we proceed.

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ALLEGORISM AND LITERALISM.

One of the greatest difficulties in the interpretation of the Mosaic account of creation turns on the meaning to be assigned to the word *day*. This is a difficulty which has been recognized from the earliest ages of the Church and has given rise to divers systems or schools of interpretation. Of these various schools it will be sufficient for our purpose to review briefly the teachings of the four principal ones.

The Alexandrine School, of which the illustrious Origen was the most distinguished representative, favored what is known as the *allegorical*, *mystical* or *ideal* system of inter-

preting the Genesiac days. The Syrian School stoutly opposed the teachings of the Alexandrines, and advocated what is called the *literal* system. The most eminent exponents of this system were St. Ephrem and St. John Chrysostom and the great Cappadocian, St. Basil. The third system, adopted by Cardinal Wiseman, Buckland, Chalmers, and other distinguished scientists of their time, defends what is known as the theory of *intervals* or *restitution.* The fourth system, which is the one now generally preferred, is called the *period* or *concordistic* system. The last two systems are quite modern and do not antedate the present century. They are based on the discoveries of geology and paleontology, and are an attempt to reconcile the teachings of science with those of revalation. The period or concordistic system is due to the great Cuvier, who gave the first exposition of it in 1821.

Besides these four systems of interpretation I must direct attention to a fifth known as the *eclectic* system—championed by St. Gregory of Nyssa and St. Augustine. It has had many followers, and has, probably, wielded a greater influence in exegesis, and that too for a longer time, than any other system of interpretation.

According to the Alexandrine school the Mosaic narrative of creation is to be interpreted as a simple allegory. The six days are not to be understood in a literal, but in a mystical sense. The work of creation was not distributed over a period of six days of twenty-four hours each, but all things in the material universe—the cosmos—were created instantly and simultaneously. The words of Moses are to be understood not in their natural and ordinary acceptation, but are to be interpreted in a figurative sense. And more than this. By this method of procedure the text was forced to disclose divers moral and dogmatic teachings which are entirely excluded by the literal and common meaning of the words.

The allegorical method of interpretation, which exercised such a profound influence on scriptural exegesis in the earlier ages of the Church was introduced by the rabbinical schools of Palestine long anterior to the Christian era. It,

however, found its strongest advocates in the Judaeo-Alexandrine School of which Aristobulus and Philo Judaeus were the chief representatives. The former lived about one hundred and fifty years B. C., whilst the latter was a contemporary of our Lord. Philo was an ardent admirer of the Greek philosophy, especially that of Plato. Of him it was said: "Either Plato philonizes, or Philo platonizes." He endeavored to reconcile the teachings of Plato with those of the Hebrew law-giver, and when he could not do so by interpreting Moses literally, he had recourse to allegory. According to him the narrative of the creation of the world and of man, as well as the account of the Garden of Eden are but figures and symbols. "When," says Philo, "Moses declares that God completed His work on the sixth day, you must not imagine that there is a question of an interval of days, but of the perfect number,[1] six." This is the number of perfection because it contains six unities, three dualities and two trinities. When, therefore, the words of Genesis declare that the world was created in six days, we must understand that this is nothing more than a metaphorical declaration of the perfect order that reigns in the universe. "It would be the height of simplicity to think," affirms the Jewish philosopher, "that the world was created in six days, or indeed that any time whatever was required."[2]

The Christian school of Alexandria followed closely the allegorism of Philo. Its exponents, like the Jewish philosopher, reduced the narrative of Moses to a beautiful allegory, and contended that God created all things visible, the heavens, the earth, and all that it contains, plants, animals, man, in an instant of time. They imagined that they thereby attributed to the Creator an action more in harmony with His power and immutability. And the accomplishment of this action which they conceived to be unique and general,

1 A perfect number is one that is equal to all its divisors or aliquot parts. The first in the order of numbers is 6 = 1+2+3, the second is 28= 1+2+4+7+14.

2 Εὔηθές πανὺ τὸ οἴεσθαί ἐξ ἡμέραις, ἢ καθόλου χρόνῳ κόσμον γεγονέναι. *Sacrae Legis Allegor.*, Lib. I, p. 41., Edit. Turnebe.

is, they declared, plainly indicated in the first words of Genesis. "In the beginning God created heaven and earth."

The first representative of this school whose opinions on the cosmogony of Moses have been preserved to our time, is Saint Clement of Alexandria, who died in the early part of the third century. He expressly declares that all creatures were created simultaneously—ὁμοῦ—that the distinction in the Mosaic narrative of the six days does not indicate a real succession of time, but is a manner of speaking by which the inspired author accommodates himself to our intelligence, and to our habit of conceiving things. This is Philonism pure and simple.

But it is in Origen, a pupil of St. Clement, that we find the most ardent advocate of allegorism. He was unquestionably the most learned man of his time. His knowledge was truly encyclopediac in character. He was not only a master of all branches of sacred knowledge, but was profoundly versed in all the departments of profane science as well. Besides this he had a capacity for work that was simply stupendous. Living in the greatest intellectual centre of the world, "in the Babel of profane erudition," as Villemain calls Alexandria, surrounded by Gnostics and Neo-Platonists, whose intellects were as acute as their hatred of Christianity was intense, he soon perceived the necessity of making an effort to reconcile the teachings of faith with those of science and philosophy and to show that the truths of revelation were in perfect accord with the certain principles of knowledge taught by Plato and Aristotle. He wished, in the language of Mgr. Freppel,[1] that "the letters, arts and the sciences should form the propylaea of a temple of which philosophy should be the base and of which theology should be its summit and crown." He studied the Sacred Scriptures from every point of view, and wrote numerous and exhaustive commentaries on them. He established a school which was famous throughout the Orient and introduced a system of exegesis that left its impress on all subsequent systems.

1 *Cours d'Eloquence Sacrée, Origène*, Tome I, p. 46.

Unfortunately, a great portion of Origen's voluminous works have been lost. Enough, however, is left of his writings to enable one to know his mind regarding the Genesiac days of creation.

Like his predecessors, Philo and Clement, Origen believed in the simultaneous creation of the universe. His reason for holding this opinion was because he found it impossible to conceive of days, like the first three days of Genesis, with evenings and mornings, without sun and moon. "What man," he asks, "possessed of ordinary common sense will believe that there could have been a first, a second and a third day, an evening and a morning, without sun, or moon, or stars?"[1] For this reason he does not hesitate to declare that the word "days" is to be interpreted figuratively; that it means not divisions of time or duration, but refers rather to the order or gradation of God's works. The opinion of the celebrated bishop of Alexandria, St. Athanasius, respecting simultaneous creation was essentially the same as that of Origen. "No creature is older than another. All species were created at the same time by a single fiat of the Divine will."[2]

But Origen's teaching regarding the days of Creation is negative rather than positive. He does not so much formulate a theory concerning the nature of these days as he demonstrates the inadequacy of six days to explain the facts detailed in the narrative of the inspired writer. His opinion regarding the simultaneity of Creation is rather a provisional conjecture than a clearly conceived hypothesis, to be advocated to the exclusion of every other explanation. A careful examination of his works discloses this fact, and evinces beyond cavil that it was not *succession* in the divine works that he objected to, nor the *idea of time*, as implied in the cosmogic days. Neither did he combat the idea of *days*

1 Τίς γοῦν νοῦν ἔχων οἰήσεται πρώτην καὶ δευτεραν καὶ τρίτην ἡμέραν, ἑσπέραν τε καὶ πρωίαν χωρὶς ἡλίου γεγονέναι, καὶ σελήνης καὶ ἄστρων. Περὶ ἀρχῶν. Lib. iv, 16.

2 Τῶν κτισμάτων οὐδὲν ἕτερον τοῦ ἑτέρου προγέγονεν, ἀλλ' ἀθρόως ἅμα πάντα, τὰ γένη ἑνί καὶ τῷ αὐτῷ προστάγματι ὑπέστη. Orat. ii. Contra Arian. n. 60.

understood in a vague sense, as synonymous for indefinite periods of time. It was the theory that the Mosaic days were days of twenty-four hours each that he repudiated, and which he found impossible to reconcile with either the facts of nature or the words of the Sacred Text. We may, therefore, say of Origen what the Abbé Motais affirms of the school of which the erudite Alexandrine was the most illustrious representative :—"It is then undeniable that the School of Alexandria taught in reality but one thing: the inadequateness of days of twenty-four hours for the interpretation of Moses."[1]

The Alexandrine theory, as we now know, is contrary to the teaching of science. "Geology establishes the fact that the creation, or at least the ordering of the world, was not simultaneous, but gradual and progressive. The earth did not at once appear, as we behold it to-day, divided into seas and continents, adorned with its garment of verdure and animated by the presence of man and a multitude of animals of every species. Life was manifested only by degrees as in the creation described by Moses, with whom geologists are in essential accord.

"The error of the Alexandrines proceeded from the defects of the science of the time. Philo attempted to reconcile Hellenism with the teachiugs of Moses. Clement and Origen endeavored to apply the philosophical spirit to the data of a Christian revelation, and to demonstrate that Plato and his pagan compeers were one in their doctrines, and that, furthermore, in so far as they were true, they were one with the Bible. They essayed, therefore, to fathom the dogmas of revelation, and cause them to be respected by reason, by corroborating them by the authority of the most venerable sages of antiquity, and by making all human sciences ancillary to theology. The end was grand and noble, but the undertaking was difficult, and even the genius of Origen bent under the load. The masters of the Christian

1 *Origine du Monde d'apres la Tradition*, Ouvrage Posthume du Chanoine Al. Motais, de l'Oratoire de Rennes. p. 127.

school falsely imagined that there were passages in Scripture which it was impossible to defend by taking them literally, and, hence, in order to explain them, they, after the example of Philo, had recourse to allegory."[1]

They fancied, among other things, that it was impossible to accept as literally true the biblical narrative of Creation. How could one, for instance, believe that God was obliged to interrupt His work six different times before completing it? How reconcile this with His almighty power? The naturalists of that period never suspected that our globe had assumed its actual form only after a long series of revolutions. Ignorant of the truth and persuaded that the literal sense of the biblical narrative was irreconcilable with the philosophy of their epoch, Clement and Origen concluded that the first chapter of Moses was but an allegory, and they interpreted it accordingly. Such is the explanation of their exegetical system. But suppose their environment to have been different; suppose them to be living in our day. We may be certain that the Clements and the Origens would hail with gladness the discoveries of geology, because they would not be obliged to change any of their fundamental principles, regarding the accordance of science and faith. All that would be necessary would be to give these principles a different application.[2]

The allegorism of the Alexandrine school—an allegorism that was frequently of the most extravagant character—was not long in provoking opposition. A reaction was inevitable, and it came from the schools of Edessa, Antioch and Cæsarea, the most distinguished exponents of which were respectively St. Ephrem, St. John Chrysostom, and St. Basil.

St. Ephrem, who wrote in Syriac, and whose writings exercised for many centuries a profound influence on the thought of Western Asia, rejects in the most positive manner the Alexandrine teaching respecting simultaneous creation.

1 *La Cosmogonie Mosaique*, par l'Abbé Vigouroux, pp. 35–36.

2 Op. cit., p. 37.

"In the beginning," he declares, "God created the substance of heaven and earth, that is of a heaven and an earth truly existing in nature. Let no one, therefore, presume to look for allegories in the work of the six days. It is not permitted to affirm that those things were created instantly which the Scripture informs us appeared successively and on separate and distinct days. It is equally forbidden to imagine that the words of Scripture are names which do not designate things, or which designate things other than those that the words themselves signify. In the same manner, then, in which we understand by the heaven and earth which were at first created, a true heaven, and a true earth, and do not suppose that the two terms signify something else, so likewise should we be on our guard against holding to be without meaning the terms which express the arrangement of other substances, and the sequence of divers works, and should boldly confess that the nature of these divers beings is very accurately represented by the different terms by which they are denominated."[1] According to him the days of Genesis are ordinary days of twenty-four hours each.

But a very remarkable fact in St. Ephrem's view of creation is that he maintains that the first verse of Genesis teaches the creation *ex nihilo* of elementary matter, from which all the bodies of the material universe, earth, sun, moon, stars, were subsequently formed. We shall see in the sequel how this idea was at a later period developed by St. Gregory of Nyssa, and how it forestalled the general conception of Kant and Laplace.

St. John Chrysostom, like the illustrious deacon of Edessa, formally repudiates the teaching of Origen and his school regarding simultaneous creation. God could, indeed, he is willing to concede, have created the universe in the twinkling of an eye, but He did not choose to do so. On the contrary, He deigned to conform, in a measure, with our way of acting, in order that we might the more readily comprehend His work. He wished, moreover, to teach us that this

1 Quoted by Motais, Op. cit., p. 131 et seq.

world is not the result of chance but the work of an all-wise Providence who "ordained all things in measure and number and weight."

Severien, bishop of Gabales in Syria, a contemporary of St. John Chrysostom, expresses with even greater precision than the golden-mouthed orator his views regarding the Hexaëmeron. At the same time he distinctly enunciates the opinion of St. Ephrem respecting the creation from nothing of the primitive matter from which all things visible were afterwards fashioned. "God," he tells us, "made all things in the space of six days. The first day, however, differs from those which followed. On the first day God produced from nothing—ἐκ μὴ ὄντων—and, starting from the second day, He did not create from nothing, but transformed according to His pleasure that which He created the first day. . . . . God then," he concludes, "created primal mattter—ὕλας τῶν κτισμάτων—on the first day, and during the subsequent days He did no more than give form and beauty to what He had already called from nothing."[1]

What St. Ephrem taught at Edessa and Nisibus—because he was alternately the head of both these schools—and what St. John Chrysostom maintained at Antioch, St. Basil defended at Caesarea. The master of the schools of Edessa and Nisibus had laid down the canons of literalism, and the chief representatives of the schools of Antioch and Caesarea accepted them with but slight modifications. The basis of St. Ephrem's system of interpretation may be summed up in two propositions. First, that the things named by Moses have a real existence, and secondly, that the Genesiac days are ordinary days of twenty-four hours.

To these canons of St. Ephrem, St. Basil cordially subscribes. Nay more; in his defense of literalism he is disposed to go even further than had any of his predecessors. Origen had pushed allegorism to its extreme limit. He saw a hidden meaning in the simplest declarations of Scripture. According to his method of interpretation what he called

1 Τὴν μόρφωσιν καὶ τὴν διακόσμησιν τῶν κτισμάτων.—Orat. I, n. 3. De Mundi Creat.

the spiritual or mystical senses came first; the literal sense —he named it the "corporeal sense"—was in most cases but secondary. But if Origen erred by carrying allegorism too far, St. Basil, in his efforts to counteract the tendency of the illustrious Alexandrine's teachings, fell into an analogous error by laying too much stress on the literal method. In his zeal to conserve the true meaning of the words of the Sacred Text, he rejected allegory entirely, and thus often confounded the proper sense, in which the words are to be taken *ut sonant*, with their figurative sense, which, in the mind of the author, gives their true literal meaning. In his ninth homily on the Hexaëmeron, he enunciates distinctly the principles of exegesis by which he is guided. "I know," he tells us, "the laws of allegory, although I am not their author, but have found them in the works of others. Those who do not follow the common interpretation of the Scriptures do not call 'water,' water. They see in this word something entirely different. And in like manner they give a fantastical meaning to the words 'plants' and 'fishes.' And yet more. The generation of reptiles and other creatures become, according to their arbitrary teaching a subject of allegory. In this they resemble those who give to the objects of their dreams a signification which is in accordance with their taste or desires. As for myself, I call 'a plant,' a plant, and I interpret the words 'plant,' 'fish,' 'wild animals,' and 'flocks,' as I find them in the Scripture." He gives to these words their proper, literal meaning because Moses employs the words ordinarily used for designating these objects. In a similar manner, because the inspired writer employs the word "day" in his narrative, he insists on attributing to it the primary signification of a period of twenty-four hours. In a word, he concludes, though falsely and illogically, that because some of the words are to be understood in their plain, obvious sense, they are all to be so interpreted. What he found reprehensible in Origen—the application of a figurative sense to a whole narrative because some of the words of this narrative were figurative—is precisely similar to what we find fault with in his too close adherence to literalism.

Because some of the words of the Genesiac narrative are undoubtedly to be taken in their proper and simple signification, he infers that all are to be thus understood—that all figures are to be rejected even when the words of the context plainly indicate, as in some of the passages of the first chapter of Genesis, that the figurative sense of the words is in reality the only one which can truly give the literal sense of their author.

The Syrian schools, therefore, as distinguished from that of Alexandria, contend that the true sense of Holy Writ is to be found by a strict interpretation of the letter of the text, without, however, excluding entirely all allegory. But with them, as we have seen, the figurative sense is always secondary. They escaped, indeed, the reefs encountered by Origen and his followers, but they ran foul of other obstacles equally perilous. In their anxiety to preserve intact the word of God, they fell into numerous errors in matters of science from which the Alexandrine school escaped. But we need not go far to seek the reason for such lapses into error. The natural and physical sciences did not receive the attention in Syria that was given them in Egypt's brilliant capital. The doctors of Edessa and Nisibus and Antioch, did not have to meet the objections proposed to the masters of the Christian School of Alexandria by the keenest exponents of Neo-Platonism and Gnosticism. They had not to ward off shafts of sarcasm and ridicule like those which were so persistently directed against Origen by that precursor and prototype of Voltaire—Celsus—one of the bitterest and keenest opponents of the Christian name. And it was because they were thus free from the attacks of anti-Christian philosophy, that they were guilty of blunders in science which they would not otherwise have committed. Liberalism, no doubt, rendered good service to the cause of exegesis, but its too exclusive adoption was the source of many errors that were prejudicial to the cause of both Scripture and science.

A couple of instances in point will make my meaning more clear.

St. John Chrysostom, interpreting literally the words of the

Psalmist: "Who established the earth above the waters," maintains that the earth actually reposes on the waters. He fails to distinguish the metaphorical from the proper sense of the words, and mistakes a figurative statement for a positive declaration of science.

Again, by a forced interpretation of the words of Isaias: "He that stretcheth out the heavens as nothing, and spreadeth them out as a tent to dwell in," the Egyptian monk, Cosmas Indicopleustes, imagined that the universe had the form of a tent, or of the tabernacle built by Moses in the wilderness, and that the earth is a rectangular plane twice as long as it is broad and enveloped on all sides by the heavens, or firmament.

No better example could be cited of the danger of insisting on a too literal interpretation of Scripture, especially in matters that evidently come within the purview of science. If allegorism is fraught with danger when pushed too far, literalism is equally so when accepted as the chief, if not sole norm of biblical interpretation.

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ST. GREGORY OF NYSSA AND THE NEBULAR HYPOTHESIS.

As a consequence of the failure of literalism and allegorism to satisfy the demands of critics, and explain numerous difficulties in the Mosaic account of creation—not to speak of other parts of the Bible—it soon became apparent that some other system of interpretation was required, that would not be open to the defects inherent in the systems of Alexandria and Syria. A compromise was needed—a sort of *via media*, which would evade what was objectionable in the older schools, while it retained all that was good and consonant with the requirements of science and biblical criticism.

The first one to broach this compromise, and to pave the way for a *via media* was the illustrious brother of St. Basil,

St. Gregory of Nyssa. St. Basil, by the very brilliance and ardor of his defence of the literal school, had precipitated a reaction which was as inevitable as was that which followed the allegorism of Origen. For Caesarea, where the great bishop gave his exposition of the Hexaëmeron, like Alexandria, was, as St. Gregory Nazianzen tells us, "a metropolis of arts and sciences." In Caesarea, as in Alexandria, the Bible and the dogmas of Christianity were the objects of the constant attacks of pagan philosophy and Manichaean dualism. But no question, probably, excited greater interest, or provoked more discussion than that respecting the origin of the world. To the Genesiac account of the unity of origin of all things, the Manichaeans opposed their system of dualism, while Julian, the apostate, labored with demoniac zeal and persistency to prove that the cosmogony of Plato was superior to that of Moses. All the resources of Greek science were marshaled against the Christian citadel; every species of stratagem was resorted to, and every form of assault tried, but in vain. The Christian defenses remain impregnable, and the soldiers of the Crucified came forth from the conflict not only unscathed, but stronger than they had ever been before, and better prepared to fight new battles and achieve other and more glorious triumphs.

A characteristic of the great Cappadocian doctors, that we must not lose sight of, was their great love of science. They were eminent not only for their vast knowledge of the Sacred Scriptures, but also for their accurate acquaintance with all the branches of profane science as taught in the best schools of their time. Indeed, in the Hexaëmeron of St. Basil, we have, according to the Abbé Bayle, a resume of all that was known in the illustrious prelate's day respecting astronomy, physics and natural history. While studying at Athens, he devoted special attention to profane science, and made a critical examination of the divers systems of cosmogony as taught by the various schools of Greek philosophy. According to all accounts he was one of the most learned men of his century, and if we detect errors of science in his exegesis,

we must attribute them to the defective knowledge of his age—when all the inductive sciences were still in an inchoate state—rather than to an ignorance on his part of any of the positive knowledge possessed by his contemporaries. For we must not forget that in the time of the great Bishop of Caesarea *a priori* reasoning, rather than observation and experiment, was appealed to to explain the origin and nature of the visible universe. Theory and speculation, as a consequence, often took the place of real science, and errors innumerable were the inevitable result.

Such being the case, far from finding fault with the mistakes in science which we observe in the works of the early Christian exegetists, we should rather be surprised that the errors are so few. They were certainly not more numerous, nor more serious, than those found in the works of the ablest of the professional exponents of the profane science of the period. It were foolish to expect them to know more about geography than Eratosthenes, and Strabo and Pomponius Mela, who had made a life-study of the subject; or to demand of them a more accurate knowledge of astronomy than was possessed by Hipparchus, or Ptolemy; or to suppose that they should have a more precise and a more extended acquaintance with physics and natural history than had Aristotle or Pliny. Such an exaction would be the height of unreason. As well might we find fault with them for not being so well versed in physics as Ampère or Maxwell, or reproach them for knowing less of astronomy than Leverrier or Father Secchi, and less of geography than Humboldt, Malte-Brun, or Carl Ritter—men whose science was based on the experiments and observations of thousands of investigators, and on the accumulated knowledge of well nigh twenty centuries.

But we may go yet further. Not only were the exegetists I have named, especially those of Alexandria and Caesarea, imbued with a love of science, and fully abreast with every advance of scientific research, but they were the first to propose or develop a true theory of the origin of the world and to lay the foundations of cosmogonic doctrines that are usually credited

to investigators of a much later epoch. A most striking illustration of the truth of this statement is found in that marvel of exegesis—the *Hexaëmeron* of St. Gregory of Nyssa—wherein is developed, in unequivocal terms, the same hypothesis that has so long been regarded as the special glory of the *Système du Monde* of Laplace.

St. Gregory of Nyssa, who was the youngest brother of St. Basil, was induced to write his great work by an elder brother, Peter, the Bishop of Sebaste, who became alarmed at the criticisms that were constantly made on the cosmogonic views of the eloquent Bishop of Caesarea. Gregory was inferior to Basil in eloquence and erudition, but surpassed him in scientific method and philosophic spirit. His prime, if not his sole intention, when he took up his pen and engaged in the controversy, was to defend his brother from the attacks of his critics. But he soon found himself almost unconsciously and against his own will, forced to abandon this idea. He discovered that the cosmogonal views of Basil could no longer withstand the onslaughts of the critical Greeks, who had carefully followed them from beginning to end.

But he would never admit that there was any fundamental difference between his teaching, and that of his distinguished brother. He maintained that Basil, speaking in a large church, to a numerous audience, was obliged to adapt his language to the intelligence of his hearers, but that in spite of his precautions he was often misunderstood. Gregory's purpose, then, was to explain the views of his brother, and not to contradict them or to proclaim them untenable. But although he disavows any intention of advocating aught that was different from what his brother had taught, and although he explicitly declares that his sole purpose is to graft a small shoot on the noble tree of his master, he does, as a matter of fact, teach doctrines essentially different, and promulgates a theory of cosmogony, that not only makes him the founder of a new school of exegesis, but which evinces that he was one of the clearest and boldest thinkers that the world has ever known.

St. Gregory of Nyssa, like his brother St. Basil, and his illustrious friend, St. Gregory Nazianzen, accepted the Alexandrine doctrine of simultaneous creation. But he succeeded better than either his brother or his friend in keeping to the *via media* between the Alexandrines on the one hand and the Syrians on the other. He avoids the excessive allegorism of the former as well as the exaggerated literalism of the latter. Like Origen and Athanasius he admits the name and idea of simultaneous creation, but rejects the purely symbolic explanation of the first chapter of Genesis which was given such vogue by Philo. With the Syrians he distinguishes six real days in the work of creation, but unlike them, he is not a slave to the letter of the Sacred Text. His method is more critical, and he acknowledges on all occasions the service that profane science may render to Scriptural exegesis.[1]

According to St. Gregory of Nyssa, the words "In the beginning God created heaven and earth," do not refer to the creation of the heavens and the earth, as we now behold them, and still less do they signify the creation of the creatures—plants, animals and man—that inhabit the earth. They refer rather to the creation from nothing of the primitive, cosmic matter—from which all forms of matter, organic and inorganic, were subsequently fashioned. In modern phraseology, all the material universe was at first in a gaseous or nebulous condition, and from this nebulous matter all the heavenly bodies, sun, moon, stars, planets were in course of time evolved. The Saint finds a warrant for this interpretation in the words of Genesis itself. For, according to the inspired writer, the earth after the first creative act, was "void and empty," or as the Septuagint has it, "invisible and discomposed."[2]

1 Cf. F. Vigouroux, op. cit. p. 88.

2 The words of the Vulgate are *inanis et vacua*. The Septuagint, however, employs terms that are more expressive, and which are at the same time in perfect accord with the teaching of modern science regarding the origin of the world. The words used by The Seventy are ἀόρατος καὶ ἀκατασκεύαστος—*invisibilis et incomposita*—and indicate a condition of things

In the beginning, then, all things were created potentially rather than in act; they were contained naturally or in germ in the invisible and unformed matter that came forth from nothing in response to the divine *fiat*. The first sentence of Genesis tells us of creation properly so called—the *opus creationis*. That which follows refers to the formation, from pre-existing matter, of all the bodies of the universe. This is what theologians call the *opus formationis*, and what modern scientists denominate development of evolution.

In the beginning, therefore, according to St. Gregory of Nyssa, all was in a chaotic or nebulous state. But it did not remain so, because the Almighty put it under the action of certain physical laws by virtue of which it was to go through that long cycle of changes of which science speaks, and about the existence of which there can, it seems, no longer be any reasonable doubt.

The manner in which the Saint expresses himself when treating of this subject, is, considering the scientific knowledge of his time, simply marvelous. He seems to have had an intuitive knowledge of what could not then be demonstrated, and of what could be known only after the revelations of modern geology and astronomy. In this respect he often reminds one of Aristotle who had intuitions of certain of the laws and processes of nature, of which there was no experimental evidence until more than two thousand years after he had given expression to his opinions.

After the primitive, nebulous matter of the cosmos was created, certain molecules, St. Gregory teaches, began, under the influence of attraction, to unite with other molecules, and to form separate masses of matter. In the course of time, these masses of matter, rotating on their axes, gave off similar masses, which assumed a spherical form. In this wise were produced the sun and moon, stars and planets.

The various heavenly bodies resulting from the condensation of the primitive nebulæ, that filled all space, exhibited,

implied by the word *chaos* of the Greek philosophers, the "*rudis indigestaque moles*" of the Roman poet, and by the Hebrew words תהו ובהו, which are often rendered by the words *solitudo et inanitas*.

as St. Gregory declares, many and striking differences. They differed in size, weight, luminosity: in their relative distances from their centres of attraction and in the orbits which they described with such unerring precision and harmony.

But in this brilliant conception, in which he could but divine what Laplace and his compeers have made all but certain, St. Gregory recognized the existence of laws which he was unable to detect, much less comprehend. These were the laws made known long ages afterwards by the investigations of Kepler, Newton and Plateau, and the laws of chemical affinity which have thrown such a flood of light on the secret operation of nature. But in spite of its many defects, due to the ignorance of the age in which he lived, his *Hexaëmeron* will ever remain a noble specimen of learning and philosophical acumen, and his theory of the formation of the world must always be regarded as a marvel of scientfic divination that is unsurpassed by even the boldest conceptions of that master-intellect of the world—Aristotle. No exegetist has ever been more happy in the employment of the scientific method; no one has ever had a keener appreciation of the reign of law and order which obtains in the universe; no one has ever realized more thoroughly that the cosmos, as we now see it, far from being the work of chance or the result of a series of divine interventions, is the outcome of a gradual evolution of that primordial matter which God created in the beginning; which He then put under what we call the laws of nature, and which He still conserves by His Providence. Excepting unimportant details the general tenor of his cosmogony is to-day as consonant with the teachings of Scripture and the latest conclusions of science as is that of an interpreter of our own century. He is conscious of the difficulty of making the days of Genesis days of twenty-four hours, as did his brother and the exponents of the literal school generally, but out of respect for those whom he held in such great reverence, he appears to have been unwilling to grapple with the difficulty directly, much less to propound a theory that could be construed as a contradiction of the doctrine of St. Basil, whom he had it in

purpose to explain and defend. But notwithstanding his deep reverence for his brother and the delicacy of feeling he exhibits towards him throughout his masterly work on Genesis, one cannot but recognize that he considered the teachings of the literal school inadequate to explain the declarations of Moses, and that a new interpretation—the one he himself so modestly suggests—is the only one which can afford a logical answer to the difficulties raised, and which at the same time harmonizes with both the words of the Sacred Text, and with the teachings of profane science. His teaching regarding the evolution of the universe under the action of physical laws, and the gradual formation of the earth, and the successive production and development of the various creatures which inhabit it, leaves us in no doubt as to his theory of cosmogony, nor as to the fact that he is in all justice to be regarded as the father and founder of the modern school of Scriptural interpretation, as well as the real originator of the nebular hypothesis[1] that is so exclusively attributed to modern thinkers, especially Kant, Herschel and Laplace.

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ST. AUGUSTINE AND EVOLUTION.

EXEGESIS—OLD AND NEW.

But wonderful as were the scientific intuitions of St. Gregory of Nyssa, they were eclipsed by those of the illustrious Latin Doctor, St. Augustine. Both men were remarkable for the keenness of their perceptions, and for the logical manner in which they treated every question that was presented them for discussion. Both had a complete acquaintance with the profane sciences as taught in their day and recognized the assistance a knowledge of science may render the student of Scripture. Both, too, excelled in

1 The materialistic cosmologists of the Ionic Schools, especially Thales, Anaxamander and Anaximenes, who are sometimes credited with originating the nebular hypothesis, had but a vague perception of its truth.

the scientific and philosophic method which they employed with singular success in the elucidation of controverted Biblical topics and possessed a critical faculty which was far superior to that observable in any of their contemporaries. But distinguished as he was among the exegetists of his day, and notwithstanding the fact that he was *facile princeps* among the intellectual giants of his time and race, the Bishop of Nyssa had neither the genius nor the erudition, nor the comprehensiveness of view that we admire in the prelate of Hippo. In the great African doctor we seem to have combined the searching and potent dialectics of Plato, the profound scientific conceptions of Aristotle, the learning and versatility of Origen, the grace and eloquence of Basil and Chrysostom. Whether we regard him as philosopher, theologian or exegetist; as confuting Arians, Pelagians and Manichaeans, or as vindicating the faith of the Gospel against Paganism, or grappling with the difficult and obscure questions of Mosaic cosmogony, or fixing, with long and steadfast gaze, his eagle eye on the mystery of the Trinity, the Doctor of Grace is ever admirable, at once the glory of the Church and the Master of the ages.

In Scriptural exegesis he is the author of the system usually known as *eclecticism*, a system that was based in some measure on the teachings both of the Alexandrine and Syrian schools. Like St. Gregory of Nyssa, he saw the necessity of a *via media* between the systems advocated by Origen and Ephrem, but unlike him he was more positive in his repudiation of the insufficiency of literalism and in his condemnation of the extravagances of allegorism. He scrutinized both systems closely, and exhibited in the most luminous manner the merits and defects of each. At one time he was disposed to take refuge in the simultaneity of the Alexandrines; at another he sought light in the interpretations of their opponents at Edessa and Caesarea. He critically examined, one by one, the theories of his predecessors and found them wanting. He evolved theories of his own, until they numbered more than half a score, but without any satisfactory result. Indeed, the Mosaic Hexaëmeron seemed

to possess a special fascination for him, and the problems which it raised appeared to haunt him from the time of his conversion until the end of his life. He returns to them over and over, and takes them up repeatedly as if for the first time. He rejects methods that he had once approved, and casts aside as untenable theories which he himself had most strongly supported. At one time he appears to be a disciple of Origen and Clement, at another a pupil of Ephrem and Basil. His is the intellect of genius groping in darkness and essaying the impossible in the region of mystery. We see this whenever the question of creation is mooted—in his "Confessions" and in his "City of God;" in his unfinished work on Genesis, and in his "Retractions;" and his crowning treatise on the subject—the most complete antiquity has left us on creation—the twelve books entitled *De Genesi ad Litteram.*

During the twenty-five best years of his life the first two chapters of Genesis were continually before the Saint's mind. What did Moses mean by the words "days," he asks again and again, in accents of mingled pathos and despair. How could there be days in the ordinary acceptation of the word before the sun was created on the fourth day? Were not the first three days mentioned by Moses periods of time rather than ordinary days of twenty-four hours each? And what about the seventh day—a day that had no evening—a day therefore, that still endures? And yet another difficulty. How explain according to the laws of nature, which are the laws of God, the production and development of the various forms of plant and animal life in the short period of six ordinary days?

The idea that God, during the Genesiac days, operated in a manner different from that which subsequently characterized His Providence, that the laws which governed the material universe were not the same then as they were afterwards; that the Hexaëmeron was distinguished by a series of miracles, and a succession of specific creations, rather than by the reign of law that the Creator Himself had imposed on matter, and by which it was endowed with the

power of gradual evolution and differentiation, seemed so repugnant to the keen and logical intellect of Augustine that he could never bring himself to adopt it, much less give it his support.

That the Almighty should interrupt His work after having commenced it; that He should take it up six several times before completing it, was to his mind as inconsistent with just ideas of divine power and wisdom as it was to that of Origen. What he knew of the uniformity of the laws of nature contradicted such an interpretation, and the more he studied the Sacred Text the less warrant there seemed to be for it in the words of the inspired writer. He does not deny the miraculous. Far from it. But he does not favor the invoking the aid of miracles without necessity, or appealing to them in every difficulty of interpretation, and thus making them serve the purpose of a *Deus ex machina*.

In his "Confessions"[1] St. Augustine gives us an idea of the special attraction which the Hebrew cosmogony always possessed for him. "Let me hear and understand," he prays, "how in the beginning Thou didst make the heaven and the earth. Moses wrote this; he wrote and departed—passed hence from Thee to Thee. Nor now is he before me; for if he were I would hold him, and ask him, and would adjure him by Thee that he would open unto me these things, and I would lend the ears of my body to the sounds bursting from his mouth. . . . As then I cannot inquire of him, I beseech Thee—Thee, O Truth, full of whom he spoke truth—Thee, my God, I beseech, forgive my sins; and do Thou, who didst give to that Thy servant to speak these things, grant to me also to understand them."

The meaning of the word "day" was as great an enigma to him as it was to Origen and his school. His reason revolts at the idea of regarding the days of Genesis as ordinary days of twenty-four hours. He is convinced that they cannot be true "solar days;" that they are not produced by the revolution of the heavenly bodies. They must, therefore, be "entirely different from the days that compose our

1 Book XI, Cap. iii.

weeks;" "of a character quite extraordinary, and to us unknown."

"What are these days?" he inquires in his great work *De Civitate Dei*,[1] "It is very difficult, if not impossible to conceive, much less to declare in words.[2] The days which we know have an evening when the sun sets, and a morning when the sun rises. But the first three days were without a sun, which, according to Scripture, was created only on the fourth day."

"If," he writes elsewhere, "in the six other days the words *evening* and *morning* characterize a succession of time analogous to that with which we are familiar in the daily alterations of evening and morning, I fail to see why the seventh day did not have an evening, and why it was not followed by another morning. I look in vain for a reason why it is not said of this day as of the others: 'And the evening and the morning were the seventh day.' In the hypothesis of ordinary days, it is one of the seven which constitute the week; the repetition of which gives us months and years and centuries. It should, consequently, have had an evening and been followed by the morning of the eighth day. Then, and then only would Moses have completed his enumeration, and returned to the first day named. It is, then, more than probable that the seven days of Genesis were entirely different in their duration from those which now mark the succession of time. Nothing of which we are now cognizant can give us any information regarding the first six days of the earth's formation. The evening and the morning, the light and darkness, called day and night, were not, then, the same as we now understand by solar days. Regarding the three days which preceded the formation of the sun this view may be accepted as certain."[3]

But if the Genesiac days are not solar days, what are they? The Saint has told us what they are not. Had he any con-

1 Lib. XI, Cap. vi.

2 "Qui dies cujusmodi sint, aut perdifficile nobis, aut etiam impossibile est cogitare, quanto magis dicere."

3 *De Genesi ad Litteram*, Lib. IV, cap. 18.

ception of what they were? A close study of his latest works will leave no doubt about this matter.

The word "days," according to the illustrious doctor were not to be taken in a literal, but in a figurative sense. They meant, not ordinary days, but the works of creation which were unfolded in time by a series of progressive transformations. For a similar reason the words evening and morning are to be interpreted metaphorically as meaning not dusk and dawn, but the beginning and end of the divine works.[1]

God, according to St. Augustine, as well as according to St. Gregory of Nyssa, first created matter in an elementary or nebulous state. From this primordial matter—created *ex nihilo*—was evolved, by the action of physical laws imposed on it by the Creator, all the various forms of terrestial life that subsequently appeared. In this process of evolution there was succession but no division of time. The Almighty completed the work He had begun, not intermittently, and by a series of special creations, but through the agency of secondary causes; by the operation of natural laws —*causales rationes*—of which He was the Author.

The seventh day, which has no evening, still endures. It means, therefore, a period of time, as do also the other six days, for they are and must be identical. The divine week, spoken of in Genesis, is consequently unlike the human week. The days in the two cases, far from being analogous, are widely dissimilar, and express ideas totally different.

The great doctor of Hippo was not, it is true, able to demonstrate the truth of his theory, but he showed that it was more reasonable and more probable than any others that had been advanced, and at the same time more conformable both with the words of the Sacred Text, and with the declarations of science. He blazed out the road to be traveled by those who came after him, and established principles which served as the basis of all future exegesis.

1 "Restat ergo ut intelligamus, in ipsa quidem mora temporis ipsas distinctiones operum sic appellatas, vesparam propter transactionem consummati operis, et mane propter inchoationem futuri operis." *De Genesi contra Manichaeos*, Lib. I, cap. 14.

"Unable to enter the port himself, he avoided mistaking a moving island for the main land. If he casts anchor, it is but *en passant*, and during the night only. His stops, while his vessel is riding at anchor, are but so many halts in his voyage. For twenty-five years he sails the high seas without being able to touch land. Less fortunate than Columbus, he never reached the world which was the object of his quest. The voyage was too long for a mariner without a compass. But it prepared the way for discovery. He signalizes all the shoals, he points out the route, erects light-houses, and indicates the direction to be taken. Unable to be the author of modern exegesis, he was its precursor and prophet. Prevented from establishing it on a firm basis, he did what was probably better. In the name of Moses he demonstrated its necessity."[1]

A little geology, a view of the fossiliferous strata of the earth's crust in the light of paleontology, an inkling of the theory of cosmogony as based on the discoveries of modern physics and astronomy, were all that the Saint required to place his system of interpretation on the solid foundation on which it now reposes.

He was conscious of his ignorance of certain data which he did not possess, and of which he could not divine the character. But he looked to the future to remove difficulties which to him were insuperable. And when, long centuries afterwards, geology and astronomy achieved their glorious triumphs, exegetists had nothing more to do than apply the inductions of science to the principles which the great Doctor had laid down, and lo! Moses became his own interpreter, and the Bible and Science were one.

The most remarkable feature of St. Augustine's system of exegesis—a feature that has been only incidentally alluded to in what precedes—is the special stress he lays on the operation of natural laws, and the observations he makes concerning derivative creation, or creation through the agency of secondary causes. In this respect he is unique among the

1 *Origine du Monde*, par Al. Motais, p. 220.

Fathers, and far in advance of any of his predecessors. Indeed it is only now that the world is beginning to awaken to a realization of the far-reaching character of the principles which the Saint established, and of their complete harmony with both the teachings of science and truths of revelation. This is especially the case in respect of the bearing of his doctrines on the modern theory of evolution.

It may seem strange to some of my readers to be told that St. Augustine was the father of theistic evolution, and yet, paradoxical as it may appear, the statement is substantially true. Of course, it is quite evident that he knew nothing about evolution as it is now taught. When nothing more was known of the sciences of botany, physiology, and zoology than the little that had been taught by Aristotle, Galen and Pliny; when only a few species of animals and plants had been studied, and those but imperfectly; when geology and paleontology were unknown, and when the few fossils that were occasionally met with attracted either no attention or were regarded as mere *lusus naturae* or evidences of the plastic power of the earth; when the microscope was undreamed of, and when the world of microscopic life—the world "of the infinitely little" was still hidden from the gaze of the investigator; when the telescope and the spectroscope were not available for researches regarding the origin and constitution of the physical universe, it could not be expected that even a genius like that of St. Augustine—marvelous as it was for its institutions, and for its grasp of scientific principles—would be able to take the same comprehensive view of the vast field of nature, as one may now take, fifteen hundred years later, or as the illustrious Doctor would himself take, if he were now living.

And if the Saint could have had no knowledge of evolution in the sense in which it is now understood, still less could he have been an evolutionist like unto Darwin, Romanes, or Herbert Spencer, or like Schmidt, Vogt or Ernst Haeckel. The faith he professed, the philosophy by which he was guided and the revelation which illumined an intellect naturally perspicacious and open to truth, made this impossi-

ble. In what sense, then, was he an evolutionist and how may he be considered as the precursor or father of modern evolution? Let us see.

We have already remarked that St. Augustine seems to have been the first of the Fathers to have a distinct conception of the fact that the world is under the reign of law, and that God in the government of the physical universe, acts not directly or immediately, but indirectly and through the agency of secondary causes, or what we are pleased to denominate "the laws of nature." His language on this subject is so explicit that it cannot be mistaken. In his commentaries on Genesis, in his "City of God", as well as in his other works, he is continually speaking of the laws of nature—*leges naturae*—by which created things are governed; the ordinary course of nature—*usitatum cursum ordinemque naturae*; the causal reasons of things—*causales rationes*—which God gave to the world when He created all things, and in virtue of which inorganic matter becomes capable of transformation, and organic matter acquires the power of development. He insists on it that we should explain the phenomena of the physical world in conformity with the nature of things—*naturas rerum*—and not by the constant intervention of miracles, and emphasizes the fact that the Almighty has "ordained all things in measure and number and weight."

St. Augustine, as we have seen, clearly distinguishes between creation properly so-called—*opus creationis*—and the the work of formation or development—*opus formationis*. The former was direct and simultaneous, for God, the Saint declares, created *omnia simul*, while the latter, he contends, was gradual and progressive and comformable to the laws of nature which now obtain. He tells us distinctly that animals and plants were produced not as they now appear but virtually and in germ—*in semine* or *ex seminibus*—and that the Creator gave to the earth the power of evolving from itself by the operation of natural laws the various forms of animal and vegetable life.

"As there is invisibly in the seed," he affirms, "all that

which in the course of time constitutes the tree, so also are we to view the world when it was created by God—*cum simul omnia creavit*—as containing all that which was subsequently manifested, not only the heavens with the sun and moon and stars . . . . but also those things which He produced potentially and causally—*potentialiter atque causaliter*—from the waters and the earth, before they appeared as we now know them."[1] Again he affirms that all things were in the beginning created in an elementary condition—*in quadam textura elementorum*—and received their development subsequently, *acceptis opportunitatibus.*

In order that he may not be misunderstood, the Saint expresses himself in manifold ways. He has an exuberance of language to make his meaning clear, and a wealth of illustration which is as beautiful as it is simple and apposite. In commenting on the words: "Let the earth bring forth the green herb," he states explicitly that plants were created not directly but potentially—*in fieri, in causa*—that the earth produced herb and tree causally—*causaliter*—and in virtue of a power it had received from the Creator—*producendi accepisse virtutim.*[2]

He insists on it that Moses in the first chapter of Genesis teaches that creation was a successive *secundum intervalla temporum*—; that the works of creation were not disconnected, but that on the contrary they were continuous and dovetailed, so to speak, into one another; that there was a *permixtio dierum*; that all things, plants, trees and animals, appear, multiply and develop according to the special laws of their nature—*ut agant temporales numeros suos naturis propriis distributos*—; that their development is normal, according to laws ordained for each individual; that it was the same in the beginning as it is now; that then, as now, it was effected not within a few ordinary solar days, but during a period of time which is indeterminate—*per volumina saeculorum.*

1 *De Genesi at Litt.* Lib. V. Cap. xxiii.

2 "Causaliter ergo tunc dictum est produxisse terram herbam et lignum, id est producendi accepisse virtutem."—Op. cit., Lib. V, Cap. v.

"In the beginning," he declares in his great work against the Manicheans,[1] "God created heaven and earth. By the words heaven and earth are meant all creatures made by God. They are thus denominated by the name of visible things in order that weak human minds may more readily comprehend them. Matter then as just created was invisible and formless and in the condition which the Greeks designated by the word chaos. From this individual beings—those having form—were produced."

This formless matter, which God created from nothing, was first called heaven and earth, and it is written that: "In the beginning God created heaven and earth," not because it was forthwith heaven and earth, but because it was destined to become heaven and earth.[2] When we consider the seed of a tree we say that it contains the roots, the trunk, the branches, the fruits and the leaves, not because they are already there but because they shall be produced from it. It is in this sense that it is declared that: "In the beginning God created heaven and earth, that is to say, the seed of the heaven and the earth, when the matter of the heaven and the earth was yet in a confused state. Because heaven and earth was to be produced from this matter, it is thus called by anticipation, as it were, heaven and earth."[3] Verily, in reading these words we can fancy that we are perusing some modern scientific treatise on cosmogony instead of an exposition of Genesis written by a Father of the Church fifteen centuries ago.

The theory of creation, therefore, as held by the Fathers, does not, contrary to what is so often supposed in our day, "necessitate the perpetual search after manifestations of miraculous powers and perpetual catastrophes. Creation is not a miraculous interference with the laws of nature, but the very institution of those laws. Law and regularity, not arbitrary intervention, was the patristic ideal of creation. With this notion they admitted without difficulty the most surprising origin of living creatures, provided it took place

1 *De Genesi contra Manicheos*, Lib. I, Cap. 5.
2 "Non quia jam hoc erat, sed quia jam hoc esse poterat."
3 Loc cit., Lib. I, Cap. vii.

by *law*. They held that when God said: 'Let the waters produce, let the earth produce,' He conferred forces on the elements of earth and water which enabled them naturally to produce the various species of organic beings. This power, they thought, remains attached to the elements throughout all time."

St. Thomas Aquinas brings out this idea clearly when, in quoting St. Augustine, he declares that: "In the institution of nature we do not look for miracles, but for the laws of nature."[1] The same Angel of the Schools, in comparing the literal interpretation of St. Basil with that advocated by St. Augustine, asserts that the former is more conformable to the text, but that the latter is more reasonable and better adapted to defend the Sacred Scriptures against the attacks of unbelievers.[2]

From the foregoing it will be seen how ill-founded is the charge that Catholic exegesis is continually changing in order to make way for the new. So far is this from being the case, that it in many cases rejects the new and holds on to the old. This is particularly true of the theories of St. Gregory of Nyssa and St. Augustine regarding the origin of the world, and it were easy to show that it is equally true of other views which they maintained. In details, in matters of minor importance, no one denies, or can deny, that there have been changes, or that Catholic exegetists have modified their expositions of the Scriptures so as to make them harmonize with the latest results of scientific research.

But changes in matters of detail in biblical interpretation, changes in points of view regarding Mosaic cosmogony, are quite different from changes of principles in questions of exegesis. The principles that have guided theologians and commentators have ever remained the same, however great may have been the mutations of profane science, and how-

1 "In prima autem institutione naturae non quaeritur miraculum, sed quid natura rerum habeat, ut Augustinus dicit. Lib. II, Sup. Gen. ad. Litt., Cap. i." Sum. Iae, lxvii, 4, ad 3.

2 *Ibid.*

ever much scientific investigation may have caused us to revise our views of nature.

Catholic exegetists have always regarded the Bible as the word of God, but one of the principles of interpretation which they never lose sight of, and which it is important for us to bear in mind here, is that we must submit certain questions of Scripture to the examination of both reason and science. This is especially true of topics like the cosmogony of Moses, which refers to many things that come within the purview of science, and which science alone can explain.

Origen attached so much importance to a knowledge of profane science that, as St. Gregory Thaumaturgus relates, he taught his students physics and astronomy before he introduced them to the study of Sacred Scripture. St. Augustine is no less positive in affirming the necessity on the part of the commentator of making his interpretation accord with the dictates of reason and the certain data of science—*certissima ratione vel experientia.* He asserts expressly that the human sciences raise the mind to divine things—*disciplinae liberales afferent intellectum ad divina;* that philosophy, which is the chief among the sciences—*omnium disciplinarum excogitatrix*—is of special service in begetting, defending, nourishing and strengthening the faith : *Fides, quae per scientiam gignitur, nutritur, defenditur, corroboratur.*

One of the reasons that moved the Alexandrine school to adopt the theory of simultaneous creation was, as we have seen, that it harmonized better than any other theory with the philosophical systems then in vogue. And the reason why, at various subsequent epochs, divers other views were held, was because such views were considered to be more in consonance with the deductions of science and the declarations of the Sacred Text.

The theories, then, of exegetists have changed because science—or what was called science—has changed, and not because there has been any change in, much less repudiation of, the principles of Scriptural interpretation. The principles of exegesis that Origen taught, that Basil followed, that

Augustine proclaimed, were ever the same, and one with the principles that Catholic theologians now employ.

Cardinal Franzelin, in his learned tractate on Sacred Scripture, expressly declares that: "The interpretation of questions of Scripture which treat of natural things may be materially aided by the natural sciences."[1] This view of the erudite Cardinal, to which Leo XIII gives renewed and emphatic expression in his late Encyclical *Providentissimus Deus*, is the one universally held by contemporray theologians, and it was the one, and the only one, which found acceptance with the Fathers and Doctors of the early Church. No, I repeat it, the principles of exegesis have not changed, but science has progressed, and theories that were once considered as so much veritable science have been discarded for others which for the nonce are looked upon as being more tenable.

If scientists themselves modify their views to suit the latest advance of science, can they, with any show of reason, find fault with theologians and exegetists for doing the same? Surely not. The Fathers and Doctors of the Church were fully abreast with the science of their time, and it were folly to expect more than this of them; to exact of them a knowledge which those who made the pursuit of science a specialty did not possess, or to imagine that they should be as far advanced in the inductive sciences as those who have had the benefit of long centuries of observation and experiment.[2]

So far I have directed attention to the interpretation by the Fathers, of the Genesiac word "day;" to the theory of St. Gregory of Nyssa regarding the primitive matter from which the universe was formed, and the still more remarkable theory of St. Augustine concerning organic evolution. It would not be a difficult matter to point out other points of resemblance—some of them almost equally striking—between the views of the early Fathers in matters of science and the

1 Interpretatio in locis Scripturae quae agunt de rebus naturalibus, multum juvari potest per scientias naturales. Tractatus de Trad. et Script., p. 731.

2 See also, in this connection, the statement of Leo XIII in the above mentioned encyclical.

current teachings of some of the most competent exponents of contemporary thought.

Thus St. Gregory of Nyssa tells us that in nature there is transformation but no annihilation of matter. "Everything is transformed; nothing is lost." All things move, as it were, in a circle. There are, indeed, changes innumerable, but all things, sooner or later, return to their original condition. Under the influence of the sun, clouds are formed from the sea; the clouds produce rain, and the rain eventually returns again to the sea whence it came. So it is with the phenomena of combustion and decay, in the burning of oil, in the disintegration of the human body. There is a continuous and uninterrupted cycle of changes, chemical and physical, but no destruction of matter. How like a paragraph from a modern treatise on chemistry are these words of the Hexaëmeron of the illustrious Greek exegetist of fifteen centuries ago!

Again. How wonderfully the views of the acute Greek Doctor regarding the nature of light are corroborated by the results of modern physical research! It has been objected to the Mosaic cosmogony that it must be false because it represents light as having been created before the sun and moon and stars. Light, according to the narrative of Genesis, was created on the first day, whereas the heavenly bodies were not called into existence until the fourth day. These statements, rationalists and superficial unbelievers have declared, are irreconcilable with the known conclusions of science, but so far is this from being the case that, paradoxical as it may appear, they are in perfect accord with the latest available knowledge regarding the nature of light. But St. Gregory of Nyssa, finds no difficulty in admitting the existence of light before the formation of the sun and other celestial luminaries. Anticipating the corpuscular theory of Newton, he imagined that light was a special kind of matter of which the luminous orbs of heaven were composed; that the light-giving molecules which compose the sun and moon and stars were originally disseminated throughout the primordial nebulous mass, and came together in virtue of certain laws of affinity and attraction to which they were subject. His

theory was wrong, we now say, and so was Newton's wrong, although there are not wanting certain contemporary scientists who still aver that it is more tenable than any other theory yet advanced. But be that as it may, the fact remains that light, whatever its nature, could and undoubtedly did exist before the creation of the "two great lights" that Genesis speaks of as the work of the fourth day. Whether or not we accept the Huygenian hypothesis that light is due to the vibration of a medium filling all space, known as the ether, the undulations of which are capable of producing an impression on the retina, it still remains an incontestable fact, according to Laplace's beautiful theory that "the sun is born of light, rather than light of the sun." For long before the nebulous mass from which the sun was evolved, was sufficiently condensed to form the brilliant luminary which we now behold, the revolving cosmic mass, had, in virtue of its condensation and contraction, begun to emit light, and dissipate the darkness that before had enveloped the immensity of chaos. Not only this. The principle of light, whatever it be, is, as all physicists are aware, ever latent round about us, and requires only special excitants to develop it and make us conscious of its existence. It is disclosed in the lightning's flash, in the aurora borealis and aurora australis, and in various phenomena of chemical and mechanical action and phosphorescence.

If, however, we interrogate scientists regarding the nature of light, the only response which we shall receive is: "We do not know." We can but study its properties, and these lead us to believe that it is most probably a mode of motion excited in the ether by what are called luminous bodies. It is the undulatory movements of this ether which, by means of the eye, give use to the sensation of sight. But of the true nature of light we are absolutely ignorant.

"At what period in the development of the universe the emission of light began, science is unable to say. It can, however, assert that light existed long prior to the separation of matter, or the formation of distinct luminous bodies. For this reason, there can, therefore, be no question of a con-

tradiction between the Genesiac narrative and the declarations of science regarding the origin of light."[1]

There is certainly nothing in modern science that can impair in the least the truthfulness of the Mosaic cosmogony, much less discredit the Genesiac narrative. We may to-day have truer conceptions of the nature of light than had St. Gregory and St. Augustine, but the enemies of the Bible are no more able now to show any discrepancy between the certain data of science and the words of Genesis regarding the creation of light than were the impugners of the Inspired Record in the first ages of the Church's existence.

And so I might continue giving illustrations of the perfect harmony that exists, and must exist, between Genesis and science. But my object is not to write a treatise on the subject, but only to exhibit, in a few of the more controverted points, the fact that there is no ground whatever for the statements that are so often made regarding the hopelessly irreconcilable conflict which a certain class of scientists would have us believe exists between revelation and science; between the declarations of Moses and the legitimate conclusions of the Higher Criticism, or the indisputable inductions of geology and astronomy.

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MODERN THEORIES OF COSMOGONY.

REGARDING the *Restitution* and *Period* theories, of which mention has already been made, a brief account will be sufficient.

The *Restitution*, or *Interval*, theory, as it is sometimes called, is a kind of link between the literal and period theories. Like the former it interprets the word "day" literally, but at the same time it postulates an indefinite lapse of time between the first act of creation and the six days of Genesis. In this wise it aims to harmonize the assumptions of the two theories and to blend them into one.

1 Pfaff.—Schoepfungsgeschichte p. 746.

According to the interval theory, the creation of the earth, of animals and plants, was slow and successive as is evidenced by the facts of geology. But a great cataclysm supervened which destroyed all forms of terrestial life—whence the fossiliferous deposits of the earth's crust—and reduced everything to chaos. This, we are told, is what is signified by the words: "And the earth was void and empty, and darkness was upon the face of the deep."

If, however, the first creation, indicated by the words: "In the beginning God created heaven and earth," was slow and successive, the second creation, or restoration, following the great catastrophe, was accomplished in such a short space of time—six ordinary days—that there is left no trace of it for scientific investigation. But this system, proposed by Buckland, and favored by Chalmers, Cardinal Wiseman and other distinguished scholars, has now but few, if any defenders, as it is manifestly at variance with some of the simplest facts of geology.

"A careful study of the earth's crust, and the fossils which it contains," says a well known French writer, "proves that the cataclysms which were formerly admitted, never had any existence in fact; that between the flora and fauna of any given period and that of the period following, there was never any solution of continuity. The species of one epoch overlap those of the next epoch. Among the mollusks at present existing in our seas, and even among contemporary mammals, there are many which antidate man's apparition on earth by centuries, and even many thousands of years. For this reason it is impossible to suppose that these animals were created only a few days before the advent of man."[1]

According to the *period* theory, which at present has more defenders than any other, the "days" of Genesis were not ordinary days of twenty-four hours, but indeterminate periods of time. It is also known as the *concordistic* theory because its advocates contend that it exhibits a perfect accord between

1 Lavaud de Lestrade, *Accord de la Science avec le Premier Chapitre de la Genèse*, pp. 30 et seq.

the teachings of science and the declarations of Genesis, in opposition to various *non-concordistic* theories which deny any possible reconciliation between geology and Moses.

The Genesiac days, concordists claim, were not ordinary solar days, but indefinite periods of time. The possibility of attaching any other meaning to the word, is, they assure us, precluded, not only by science, which utterly repudiates days of twenty-four hours, but also by the Sacred Text itself.

As all readers of the Bible are aware, there are many passages in the Old Testament, not to speak of the New, in which the Hebrew word *yôm*—day—signifies an indeterminate period of time. Indeed, one may find a striking instance in point without going outside of the Mosaic narrative of creation. In Genesis ii, 4, we read the words: "These are the generations of the heaven and the earth, when they were created, in the day that the Lord made the heaven and the earth." Here the word "day" obviously signifies not any ordinary day, but an indefinite period of time.

Again, as Abbé Vigouroux well observes, "Moses was obliged to employ the word *yôm*—day—to signify period, or epoch, as there is no special word in Hebrew to express this idea. This fact, generally unknown, deserves serious consideration. The repugnance that many have to admitting day.epochs arises from the fact that they make our word day absolutely identical with the word *yôm*, which is not the case. We have the word "day" distinct from the word "epoch," whereas in Hebrew there is but one expression for these two ideas. The Hebrew tongue is not so rich in its vocabulary as our own, and hence it is obliged to make a metaphorical use of the word *yôm* to express the idea that we attribute to the word epoch."[1]

But more than this. The Mosaic days, as the writer just quoted remarks, are metaphorical not only as to their signification, but also as to their number. The figure six in Gen-

1 *Manuel Biblique*, Tome I, p. 444.

esis is not to be taken in a rigorous and absolute sense. It does not mean that there were only six epochs in the work of creation, but simply that there were several successive periods of development. The number six was chosen in order that the divine might correspond with the human week, in which six days are given to work, and the seventh, the Sabbath, is consecrated to repose. Furthermore it must be noted that the cosmogony of Moses supplies only the chief outlines of the work of creation; the details, which are of less importance to the generality of men, are neglected.[1]

Again, Genesis, be it remembered, was not intended by its author to serve as a treatise on natural or physical science. Moses was neither a geologist nor an astronomer, and the scope of his narrative did not require of him either an exact or a profound knowledge of science. All attempts, therefore, to find in his account of creation an anticipation of the results of modern geologic and astronomic discovery, and to exhibit a detailed and exact correspondence between the days of Genesis and the different geological epochs are as unwarranted as they are sure to prove nugatory. We cannot, as is so often imagined, draw a line of demarcation between any one geological age and that which precedes or follows it. The fauna and flora of one period frequently overlap those of proximate periods. Throughout the whole of geologic time —from the Cambrian to the Quaternary Period—we observe a dovetailing of the various forms of life into one another and have exhibited in the most striking manner that *permixtio dierum* of which St. Augustine speaks, but of which he could have no knowledge in the sense in which, since his day, it has been disclosed by geology. Both science and Genesis tell us of a gradation from the lower to the higher forms of life and in this respect their testimony is as consonant as it is remarkable.

M. Barrande, the most eminent of modern paleontologists and one most competent to interpret the facts we are now considering, declares, in speaking of the subject, that:

1 Cf. *Les Livres Saints et la Critique Rationaliste*, par Abbé Vigouroux, Tome III, p. 262.

"As regards the creation of organized beings, the whole Genesiac narrative may be reduced to the establishing of three main facts, in reference to which it is in perfect harmony with the information which we have thus far gained by a study of geology. These facts are as follows: 1. Vegetable preceded animal life both in the sea and on land. 2. Animal life was at first represented by animals living in the sea, and by birds. 3. As a consequence animal life appeared on the land at a subsequent period, and man's advent postdates that of all other creatures. . . . . .

"From this we infer that the inspired writer had it in purpose to fix only the relative dates of apparition of plants, and of marine and terrestial animals, without entering into any historic detail relative to the subsequent development of animal and vegetable life. This development took place in the course of time either in virtue of new and repeated acts of the Creator himself, or it was the result of laws originally established by Him, and of which He has not been pleased to reveal the nature.

"In studying from this point of view the history of the creation of the vegetable and animal kingdoms as given by Moses, we find that it is in perfect harmony with that which geology has gleaned from the observation of facts, that is, from a study of stratigraphic rocks and organic remains—vegetable and animal—which they contain."[1]

These words of the distinguished French geologist are corroborated by a similar declaration of the illustrious Cuvier, who does not hesitate to affirm that: "The successive evolutions of creation, as they are traced for us by the first book of the Pentateuch, harmonize in a remarkable manner with the deductions we have been able to make from the discoveries of geology, zoology and other sciences of our time."

It must not, however, be forgotten that the concordist theory, like all other theories having for their object the reconciliation of science and Genesis, is but a theory and nothing more. Just now it is more generally accepted than

1 Quoted by Vigouroux, Op. cit., p. 261,

any other theory, and has, no doubt, much to recommend it. But even it does not explain numerous difficulties that still puzzle exegetists. There are yet many problems to be solved—problems of physical and natural science, problems of philosophy, problems of higher criticism, which baffle all present efforts, and whose solution we must leave to the future. Judging from what has already been achieved we can have no doubt about what remains to be accomplished. The result is foreshadowed by the triumphs of modern exegesis, which give a positive assurance that, in God's own time, all mysteries will be cleared up, and that both science and Genesis will eventually render the same testimony, and in language as clear as it shall be unmistakable.

Before closing our review of the most prominent theories that have obtained regarding the interpretation of the Mosaic Hexaëmeron it will be well to say a few words of the now famous theory advanced a few years ago by the late English Bishop Clifford, of Clifton. According to this theory, which is intermediate in character between the theories advocated by the schools of Alexandria and those of Edessa and Caesarea, between the allegorism of Origen, Clement and Athanasius, and the literalism of Ephrem, Chrysostom and Basil, the first chapter of Genesis is not to be construed as a historical narrative but as a ritual hymn. To quote the Bishop's own words: "The first thirty-four verses of the Bible, although they stand foremost in the collection of the writings of Moses, form no portion of the book of Genesis which immediately follows them. They constitute a composition complete in itself. They are a sacred hymn recording the consecration of each day of the week to the memory of one or other of the works done by the true God, Creator of heaven and earth, in opposition to a custom established by the Egyptian priests, of referring the days of the week to the sun, moon and planets, and of consecrating each day of the month to the memory of the actions of false deities. The hymn when examined by the light which the knowledge of the customs of Egypt, such as may at the present day be derived from the monuments and records of that country,

throws upon it, shows how carefully its detail has been arranged for the purpose of guarding against those special dangers of idolatry to which the Israelites were exposed at the time of their delivery from Egyptian bondage; thus affording an indirect but valuable confirmation of the fact that Moses was its author. This hymn not being a history of the creation, but a ritual work, the statement in it must be interpreted in the sense in which similar statements are understood when they occur in writings of a ritual character. When it is said that certain works are performed on certain days of the week, nothing more is implied than that those days are consecrated to the memory of the work referred to. Subject to this proviso the works of Moses are to be understood in their usual sense and present no special difficulty. A *day* means the space of twenty-four hours in this as in other portions of the writings of the same author. By seven days are meant the days of the week, which are simply referred to as the first, second, instead of Sunday, Monday, Tuesday, and so on, because, all reference to the planets being forbidden, there remain but the numerical order by which to cite them. Words descriptive of natural objects and phenomena, such as the firmament, the deep, the waters above the firmament, and such like, mean nothing more or less than what was implied by the same words when used by the wise men of Egypt in the days of Moses. The notions of these men were wrong on many points of natural philosophy, but their error lay in the interpretation they gave to the phenomena; the phenomena themselves had a real existence. The language of Moses refers to the phenomena independently of any interpretation which may be given the same. At the present day we speak of the stars shining in the sky, the rain pouring down from the sky, the rainbow appearing in the sky, though we are all well aware that the stars are removed far above the atmosphere in which the rain gathers which reflects the rainbow. Thus understood, the words of Moses present no manner of opposition to scientific facts. In this hymn he records two things: First, that God created all things. This is a truth which no scientific fact can invali-

date. Secondly, that each of the first six days of the week is consecrated to some special work performed by God, and that the seventh is consecrated to the rest of God and must be kept holy. . . . . .
As to the order in which the various parts of the creation came into existence and whether a longer or shorter period of time elapsed before our earth and its furniture assumed the appearance they now present, these are matters which form no part of Moses' task to explain. They enter not into his subject and he does not allude to them, and, therefore, whatever be the conclusions which scientific men may come to on these points they meet neither with approval nor with opposition from the words of Moses. The records of the stages of the existence of our globe form, no doubt, a subject of great interest to inquirers, but, beyond the fact that in the beginning God created heaven and earth, no revelation has been given to men concerning them. They belong exclusively to the province of science. They are a part of that *travail which God hath given to the sons of men to be exercised in it. He hath made all things good in their time and hath delivered the world to their consideration.* (Eccles. iii, 10, 11).[1]"

But it may be asked: What is the use of all this discussion where there are so many elements of uncertainty? "What," inquires St. Augustine, "is the net result of all this winnowing? Where is the good wheat that was to come of it? You raise questions without giving answers. Give us something positive, something conclusive."

The response of the Saint shall be also mine. I have done all that in the present state of science and exegesis it is possible to do. "I have shown that there is not a single declaration of science that is contrary to the teachings of Moses."[2] For us this is sufficient.

1 *Dublin Review*, April, 1881, pp. 330-332. See also same *Review* Oct., 1881, and Jan. and April, 1883.

2 "Dicet aliquis: Quid tu tanta tritura dissertationis hujus, quid granorum, exuisti? Quid eventilasti? Cur propemodum in quaestionibus adhuc latent omnia? Affirma aliquid eorum quae multa posse intelligi

There have, it is true, been theories innumerable, which their authors fondly imagined were subversive of the Hexaëmeron of Moses and antagonistic, consequently, to the integrity of Scripture, but there is not to-day, any more than there was in the time of St. Augustine, a single fact of science that can justly be construed as controvening the system of cosmogony contained in Genesis, or as opposed to the clear and explicit teachings of the inspired writer.

I might here conclude, but there are a few other facts, disclosed by this long discussion, which deserve at least a passing notice.

The first of these facts is the perfect intellectual freedom that the Fathers and Doctors of the Church have always claimed and enjoyed in matters outside of positive dogma. This is particularly observable in the discussion and interpretation of such questions as the one we have been considering, where science rather than revelation must be appealed to for a solution of the difficulties encountered.

We have a striking illustration of this liberty of thought in St. John Damascene, the last of the great theologians of the Oriental Church. In matters of cosmogony he chooses freely between the doctrines of the Syrian and Cappadocian schools. At one time he declares for St. Ephrem, at another for St. Basil, and at still another for St. Gregory of Nyssa. He feels that he is treading on safe ground, and that he is perfectly free to select such opinions as, according to his judgment, are most conformable to fact and truth.

And St. Gregory of Nyssa not only shows that he enjoyed perfect intellectual freedom himself, but also that he respected the opinions of others and allowed them equal liberty of thought. He does not, for instance, in the disputed questions of Mosaic cosmogony, insist on the acceptance of his own views, but modestly declares: "I think" this is so, or may be so.

disputasti. Cui respondeo, ad eum ipsum me cibum suaviter pervenisse, quo didici non haerere homini in respondendo secundum fidem, quod respondendum est hominibus qui calumniari libris nostrae salutis effectant, ut aliquid ipsi de natura rerum veracitus documentis demonstrare potuerint, ostendamus nostris Litteris non esse contrarium."—*De Genesi ad* Litteram, Lib. I, cap. 21.

St. Augustine in referring to the divers interpretations which the Genesiac record admits, says: "Let each one choose according to the best of his power; only let him not rashly put forward as known that which is unknown; and let him not fail to remember that he is but a man searching, as far as may be, into the works of God."[1] In another place he declares that "in the obscurities of natural things our investigations should be characterized by hypotheses rather than by positive declarations—*magis proestemus diligentiam inquirendi, quam affirmandi temeritatem;*" and does not hesitate to affirm that "rash and inconsiderate assertations in uncertain and doubtful passages of Scripture may easily degenerate into sacrilege." On every page of his works he inculcates both by precept and example the caution and reserve that should be exercised in the discussion of disputed questions, and is ever ready to admit in problems of cosmogony the necessarily provisional character of many of his explanations. Thus regarding one of his theories of the days of Genesis, he tells us frankly, that it is but an attempt to explain a difficult problem, and that he may sooner or later reject it for another theory. But he is the first to recognize the inadequateness of some of his hypotheses, and wishes better success to others.[2]

Another fact, often lost sight of, is that when the inspired writers of the Sacred Books make incidental reference to natural phenomena while teaching religious truth, they accommodate themselves to the prevailing ideas regarding such phenomena. "Many things in the Sacred Scriptures," says St. Jerome, "are expressed according to the opinion of the times in which they were written, and not according to the truth."[3]

1 *De Genesi Liber Imperfectus*, Cap. ix, n. 80.

2 Fieri enim potest ut etiam ego aliam (sententiam) his divinae Scripturae verbis congruentiorem fortassis inveniam. Neque enim ita hanc confirmo ut aliam quae proponenda sit inveniri non posse contendam. *De Genesi ad Litt.* Lib. IV, Cap. 28.

3 "Multa in Scripturis Sanctis dicuntur juxta opinionem illius temporis, quo gesta referuntur, et non juxta quod rei veritas continebat."—Jer. xxviii, 10-11.

"The biblical writers," says Reusch, "received supernatural enlightenment from God, but the object of this enlightenment and of the divine revelation altogether was only to impart *religious* truths, not profane knowledge; and we may, therefore, without diminishing from the respect due to the holy writers, or in any way weakening the doctrine of inspiration, safely allow that the biblical writers were not in advance of their age in the matter of profane knowledge, and consequently of natural science. The praises given by certain French savants to the genius or scientific knowledge of the Jewish law-giver because of the supposed anticipation in Genesis of modern scientific discoveries, are, therefore, not to the purpose. As regards profane knowledge, Moses was not raised above his contemporaries by divine revelation, and there is no proof whatever of his being in a position to raise himself above them by his own thought and inquiry."[1]

"It might, indeed," declares Cardinal Newman, "have pleased the Almighty to have superseded physical inquiry by revealing the truths which are its object, but He has not done so." And yet, notwithstanding this lack of revelation in matters of science, there is and can, I repeat it, be no discrepancy between Genesis and science. For, "in Holy Scripture," as Kurtz has well expressed it, "all future science can find a place; it has made no mistake; no new science can cry out, '*si tacuisses.*' It is by this means that it shows its divine character in dealing with questions of natural science."

"Theology itself," Father Faber happily observes, "will be found to fit all discoveries as they come. It is only the individual theologians who may sometimes have to humor their own private ideas."[2]

If, then, there is nothing, and can be nothing, in science that is antagonistic to faith, still less is there anything about it, as some have absurdly fancied, that is irreligious. On the contrary, "to a religious mind," as the charming writer just

1 *Bibel und Natur*, English translation, p. 32.
2 The Blessed Sacrament, p. 331.

quoted remarks, "physical science is an intensely religious thing."

"No sight," he avers, "can be more grateful to a true theologian than to behold the giant strides of scientific discovery, and the bold methods of scientific research. He has nothing to fear for his faith, except an embarrassment arising from the very riches of its demonstration, which these discoveries are continually supplying. Nothing can be more narrow, vulgar or stupid than the idea of an antithesis between science and religion. It is true that some of the sciences, in the earlier periods of their construction, turned the heads of those who drank at their fountains, and crude theories, incompatible with the dogmas of faith, were the result. Yet these only changed, at last, to fresh and more striking proofs of the divine and unalterable truth of our holy faith. For further discovery, and a larger induction, led, in every case, to an abandonment of the irreligious theory." . . . . . .

"Geology, which is the history of nature, has been regarded as a science, the cultivation of which is especially dangerous to religious habits of mind. If it be so, it is the mind that is at fault, and not the science. The whole series of controversies ending in the admission of the extreme modernness of the present surface of the globe, and the novelty of man in creation, is nothing else but a long chain of proof of the Mosaic narrative." [1]

But if there is, and can be, no antagonism between Genesis and science; if, on the contrary, the two, as far as understood, are found to be in perfect accord, there are difficulties yet unsolved. Darkness is still upon the deep mysteries of many problems of Mosaic cosmogony. The future, I am convinced, will do much toward dissipating this darkness. The past history and present condition of both science and exegesis warrant such a view. But the perfect exhibition of all the hidden harmonies that we know to exist between science and revelation; the complete reconciliation of the Inspired Record

1 Op. cit., pp. 324–326.

and the record of the rocks; the *fiat lux*, that shall dispel all the mists of error and the clouds of misinterpretation which now prevent our seeing things as they are, may indeed be "a consummation devoutly to be wished," but something, most likely, that shall be vouchsafed us only in that world where all is knowledge and light; where the mysteries of creation shall be revealed in the effulgence of God's glory.

But notwithstanding the difficulties presented by the first two chapters of Genesis, the cosmogony of Moses is the only one which antiquity has left us that can claim our assent, or challenge the investigation of science. There may be passages in it which do not at present admit of a satisfactory explanation, but there is nothing involving contradiction, and still less is there aught that can be pronounced an absurdity. Compared with the other cosmogonies of the ancient world, it is absolutely peerless, and is as far above them as history is above fiction, as truth above falsehood. Science may not unravel the knotty problems which still abound, but it cannot gainsay what Moses declares. Where there is apparent discord, we are, from the very nature of the case, certain that there is perfect harmony.

It is only when we contrast the Mosaic account of creation with the cosmogonies of the more advanced nations of antiquity that we can realize how remarkable the declarations of the Hebrew law-giver really are, and how he has answered questions before which pagan philosophy stood mute and impotent.

The Aryans of early India surprise us by their achievements in literature, science and art. Since their discovery, in the last century, the Vedas and codes of laws of the ancient Hindu have been the subjects of wonder and enthusiastic comment by scholars the world over. But Hindu philosophy never arose to a true conception of the one God. The Brahmin, wherever found, meditating on the banks of the Indus, or the Jumna, or officiating in the temples of Delhi and Benares, was an idolator who entertained the most grotesque notions regarding the origin and configuration of the world.

The geogonies and cosmogonies of Assyria and Babylonia were scarcely less extravagant and absurd than were those of India. Recent discoveries have shown that the peoples of Mesopotamia had attained a degree of civilization that would not have been credited a few decades ago. The arts and sciences were cultivated with ardor, and libraries were found in all the principle cities of Mesopotamia. Her philosophers were famed for their wisdom, and the astronomers of Nineveh and Babylon could predict eclipses and determine the courses of the Heavenly bodies with a degree of precision that, considering the rude instruments at their disposal, is nothing short of marvelous. But the gods of Assyria and Babylonia were but blocks of clay and stone, variously fashioned by the hand of man, and the peoples inhabiting the valleys of the Tigris and the Euphrates were as far from a knowledge of the true God, the Creator of all things out of nothing, as were the philosophical Brahmins who taught and speculated beyond the Himalayas.

What has been said of India and Mesopotamia may be iterated with even greater truth of the land of the Pharaohs. To Egypt even the greatest of the philosophers of Greece went in quest of knowledge, and many of the doctrines which they afterwards taught their disciples were learned from the priests in the temples of Memphis and Heliopolis.

Her ruins, scattered all along the Nile valley, from Ipsambul to Alexandria, are even now, after the lapse of thousands of years, the admiration of all who behold them. Philae, Thebes and Abydos, great in decay, are, like the pyramids of Gizeh, the best evidence of the greatness and genius of the people who could plan and execute such marvels. But the builders of Cheops and the designers and constructors of the Ramesseum and the Serapeum of Memphis and the teachers of the sages of Greece, deified the river that brought fertility to their land, and worshiped not only the animals that grazed in the valley of the Nile, but even the reptiles that crawled in its slime, and the leeks and onions which grew in its gardens.

"Crocodilon adorat
Pars haec, illa pavet saturam serpentibus ibin.
Effigies sacri nitet aurea cercopitheci,
* * * *
Illic aeluros, hic piscem fluminis, illic
Oppida tota canem venerantur, nemo Dianam.
Porrum et cepe nefas violare et frangere morsu :
O sanctas gentes, quibus haec nascuntur in hortis
Numina!"[1]

Nor was Greece, immortal Greece, the home of art, eloquence, poesy ; of science, history and philosophy, exempt from the errors and vagaries which were so characteristic of the great nations of the Orient. For thousands of years her art has been the art of the world, her literature the literature of the world, her philosophy the philosophy of the world. The culture of the world, the taste of the world, the æstheticism of the world come to us from the land of Plato and Aristotle, Phidias and Sophocles, Pericles and Demosthenes. For thousands of years she has been the inspiration of scholars in every clime, and has contributed to the advancement of knowledge in every department of human research. From the Academy and the Lyceum human genius winged its loftiest flight, and while soaring aloft in the blue empyrean, surveyed the fairest domains of human thought. For thirty centuries the Greek mind has directed the meditations of the philosopher, and controlled the speculations of the man of science. Her sculptured marbles have been the despair of all subsequent artists, as the Parthenon, although in ruins, still remains a dream of unsurpassed loveliness. But the noblest productions of this great land, from the matchless poems of her sightless bard to the most exquisite carving that ever graced the Acropolis, were tinctured with false views of God, and were designed to perpetuate a system of religion and foster a form of idolatry that would forever preclude man from having just notions of the Creator of the universe, or of His relations toward His creatures. Polytheism, of the most ridiculous character, dominated in Greece, and systems of cosmogony the most fantastical contended for

1 Juvenal, Sat. xv, Vers. 2 et seq.

supremacy in the greatest schools of an otherwise enlightened people.

And so it was with Rome, imperial Rome, the conqueror of the world. The architectural wonders of Athens are reproduced in the City of the Seven Hills; the golden eloquence of Cicero recalls the burning philippics of Demosthenes; in the noble epic of Virgil we recognize the sublime inspiration of the Muse of Homer. But the gods of the Pantheon are the gods of Greece, reinforced by countless accessions from the temples of all the lands in which the Roman eagle had been carried and in which Roman legions had been triumphant. Lucretius embalms in elegant verse the teachings of Epicurus; the myths of Hesiod are repeated by the author of the Metamorphoses, and all the errors of Greek philosophy are rehearsed in patrician villas and in the palaces of the Cæsars.

How different the doctrines of the legislator of Israel! With a few bold strokes he gives us a picture of the history of creation, and in a few simple words he tells us how *in the beginning God created heaven and earth.* There is no doubt, no vacillation in the mind of the author of Genesis; no obscurity in his statements regarding the creative acts of Jehovah. In a single sentence he condemns the dualism of the Eastern sage and the doctrine of the eternity of matter in the Greek sophist. At the same time he brushes aside numberless other errors in philosophy and theology, and prepares the mind for a conception of the Deity that even the greatest of the pagan philosophers never attained.

In the cosmogony of Moses we have manifested in every line the spirit of revelation. Moses answers questions that the wise men of the ancient Gentile world had essayed in vain, because he is inspired. He declares the truth because he is preserved from error by the spirit of God. Only in his history of creation does reason find a satisfactory response to the queries suggested by the very existence of the visible universe, and in Genesis alone have we a cosmogony that is in accord with all the certain declarations of science. Infidel sciolism may reject the Mosaic account of creation, endeavor

to offer a substitute, but all such attempts are sure to prove futile, and to issue in contradictions and absurdities. Physical science cannot tell us anything about creation; cannot tell us anything about the beginning of things. Neither can it clear up the mystery enveloping the origin of life, nor show us matter, as the great Cuvier happily expresses it, *s'organisant.* Before Moses atheistic materialism, and pantheistic idealism, so characteristic of pagan philosophy and pagan religion, go down as the pigmy before the giant, and the deification of nature is seen in all its hideousness and inconsistency.

And the declarations of Moses remain the same whatever theories we may have regarding the inspiration of Genesis, or the sources from which the history of creation was drawn. Is Genesis, as we now have it, revealed or inspired? that is, is the narrative a direct revelation in its entirety, or is it simply a human tradition, the most ancient of our race, collected and used by writers who were inspired by the Spirit of Truth? Is the inspiration verbal, or does it extend only to the subject-matter of the text? Does it include all the *obiter dicta* of the narrative, or does it embrace only objects of faith and morals and obtain, to use the words of the Council of Trent regarding the true sense of the Sacred Scriptures, only "*in rebus fidei et morum, ad aedificationem doctrinae Christianae pertinentium?*" Did Moses make use of traditions that were the common property of all the peoples of Western Asia, and was the inspiration under which he wrote limited to inerrancy only in the employment of the materials at hand, and in the elimination from them of the imperfections with which they abounded? Did he have at his disposal a primitive tradition, integral and unaltered, brought by Abraham from Ur of the Chaldees, or did he avail himself of others, it may be older traditions, or legends even, that were current among the Accadians and Sumerians, who were the precursors of the Chaldeans and Assyrians in the valleys and on the plains of Mesopotamia? And if he used human documents, were they then encumbered with the exuberant polytheism of Chaldea, and vitiated by the

clumsy anthropomorphism that was so prevalent among all the pagan nations of antiquity? Are we to understand that in such an event inspiration meant simply the action of the Holy Ghost whereby Moses was able to substitute monotheism for polytheism, and convert a narrative replete with the grossest natural notions into a compendium of moral and dogmatic verities of the most exalted spiritual character?

Such are a few of the questions asked by modern science and the higher criticism, and suggested by the Assyrio-Chaldean investigations of these latter days. As far as the contention of this paper is concerned, the answers are immaterial. Affirmative or negative, the statements of the author of the Hexaëmeron convey the same meaning and proclaim the same truths. Whatever the responses eventually given to the questions propounded, it will ever remain an incontestable fact that "the theodicy of the Chaldean tablets is as far from that of the Pentateuch as the theodicy of the Mahâbha-rata or of the Theogony of Hesiod is from that of the Gospel."

The Mosaic Hexaëmeron is, then, proof against all attacks that may be directed against it in the name of modern science, Assyriology, or the higher criticism. It alone of all the cosmogonies of the ancient world has withstood the onslaughts of flippant skeptics and blatant rationalists, because it alone has fully satisfied the demands of the intellect and the aspirations of the soul. What pagan philosophy ever failed to do, what modern science, of itself, is incompetent to achieve, the author of Genesis has realized in his simple, yet magnificent portrayal of God as *Deum unum*, *Deum omnipotentem*, *Deum Creatorem omnium visibilium et invisibilium.*

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CONFERENCES.

THE USE OF THE COMMUNION CARD.

Qu. Is there any sanction in the rubrics for the use of a card or palla instead of the ordinary Communion-cloth affixed to the railing which separates the sanctuary from the body of the church?

If it be lawfully used, is the celebrant obliged to purify it of the particles which probably gather upon it, just as he purifies the corporal? This precaution would seem necessary since small particles may frequently be noticed upon the paten used during the distribution of Holy Communion at solemn Mass.

Resp. The use of the so-called Communion card, in place of the pliable cloth attached to the sanctuary railing, is quite proper and in many places the better or only method that can be conveniently used to guard the reverence due to the Bl. Sacrament. The rubrics prescribe a *linen cloth* or *white cover*—"minister ante eos extendit linteum, seu velum album" (Rit. Celebr. Miss. X, 6), which expression is equally applicable to the large and small cloth of linen used. Cavalieri in his chapter *De Communione fidelium* recommends the card as preferable for some reasons.

In all cases the priest is to use every precaution to avoid the falling of particles to the ground. Hence De Herdt, vol. I, n. 273, says that the Communion-cloth attached to the railing should never be let down after distribution of the Bl. Sacrament, as is often done; for in this way particles which may have gathered upon it are thrown to the ground.

The safest means of avoiding possible irreverence or accident seems to be to have, beside the ordinary Communion-cloth of which the people take hold, a card held under the chin by the server and afterwards placed carefully and flat upon the altar or the credence-table, whereby the dropping on the ground of fragments is avoided. This conforms perfectly to the rubrical prescription, and the S. Congregation has even permitted the use of a metal plate (held above the

Communion-cloth) at low Mass, just as the paten is used at solemn Mass. (S. R. C. 20 Mart. 1875 ad IV.)

The card may afterward be purified by a stroke with it upon the corporal or, after Mass, in the sacrarium; unless distinct particles be recognized, in which case special rules for action are laid down by the rubrics.

For those who are inclined to be over scrupulous in *looking for particles* we may subjoin the sensible remarks made upon the subject by O'Kane in his *Notes on the Rubrics*, n. 655, "the loss of minute fragments . . . that fall unobserved by any one, when there is a great number of communicants, may be looked on as an unavoidable accessory of the mystery itself: and, therefore, one should not be over anxious about the matter, *when he has taken the ordinary precautions against irreverence.*"

CATHOLIC FUNERAL SERVICE AND CREMATION OF THE DEAD.

Qu. Recently a woman asked one of our priests to have a funeral Mass said for her husband who had suddenly died the previous day. In the course of conversation it transpired that some time ago she and her deceased husband had made a mutual promise that in case of the death of one of them the other would have the dead body cremated in order to take the ashes back to their native land. She came to request the service of blessing the corpse in the church, and meant to have it then burnt to fulfill the promise. Before giving her a definite answer the Ordinary was consulted as to what was the proper course to pursue under the circumstances. The answer from the Chancery came that the Catholic burial service could not be held if the condition of having the body cremated afterwards were insisted on; the authority given was a decree of the S. Congregation, which prohibits Catholics from adopting this mode of disposing of the dead body. I have the decree which answers the question "An licitum sit mandare ut sua aliorumve cadavera comburantur?" by a simple *negative*.

Would you explain the *ratio* of this prohibition and say whether there is any interpretation of it which might have permitted the celebration of a funeral Mass and customary rite for the dead, under the supposition that the body is afterwards to be cremated?

Resp. The Bishop gave the only answer which, under the circumstances, a consistent Catholic Superior could have given. As the subject was fully discussed by us some time ago in a paper on "Cremation," we must refer the reader for the *ratio* of the prohibition to the pages of the REVIEW (Vol. iv, p. 15).

It may be asked whether, although the Holy See disapproves of this mode of disposing of the dead, an ecclesiastical Superior is justified in inflicting a public penalty by refusing the burial service to such as violate the injunction—since the Church does not attach any censure to the violation, but only prohibits the practice.

We answer that the right of episcopal jurisdiction legitimately empowers a bishop thus to discountenance an overt act of disobedience to a rule laid down by the Holy See in matters of ecclesiastical discipline. What else could the authorities of the diocese do without laying themselves open to the imputation of having flagrantly ignored an injunction of the Holy See which enjoins them, in the decree above referred to, "ut gregem sibi concreditum totis viribus deterreant"—from what?—"destabilem abusum humana corpora cremandi." These are the words of the S. Office endorsed by the express sanction of Leo XIII, bidding the bishops to warn their people against a pagan revival which aims at destroying Christian worship. To bless such a proceeding would be to overturn every law of consistent moral conduct and to place the well-founded prohibition of the Holy See in the light of an arbitrary restriction.

But we wish to call attention to a case where the Holy See has tolerated and still tolerates the practice of cremation, and we mention it here in order to draw out the lines of contrast lest it serve as an argument to the thoughtless who are ever apt to lend the sound of their noisy acclaim to the novelties of what is labeled progress.

In the missions of the East Indies, which are at the present under the care of the Fathers of St. Francis de Sales, a custom exists among certain castes of the natives of burning their dead. Some time ago this act was performed with two

young neophytes whose parents were Christians and who, whilst they permitted the burning of their children, scrupulously abstained from every form of superstition connected otherwise with the act. The Vicar Apostolic (now Bishop) of Vizagapatam, relating the fact, asked the Holy See whether in such a case the missionary would be obliged to *protest* against the proceeding at the risk of making the pagans believe that the priests came to destroy their caste-privileges. "I have every reason to hope" writes the prelate, "that by careful instruction concerning the beauty of the Christian ceremonial, and by prudent management, we shall introduce a general conformity to the approved method of burying the dead." He further asked whether the missionaries might baptize children, although foreseeing that in case of their death the parents would have them cremated. The Prefect of the Propaganda replied: "*Cremationem approbare non debes, sed passive te habeas*, collato semper baptismate, *et populos instruendos cures juxta ea quae a te exponuntur.*" (Ex. Litt. S. C. de Prop. Fide, 27-Sept., 1884).

Here we have an exceptional case, and in it we may also find a reason why the Holy See does not always add a definite censure to a general injunction against a threatening abuse. Whilst with us a priest would be obliged to protest against the practice, the missionaries in the East Indies may remain passive and let cremation take place uncensured. The reason of this difference is that despite the apparent similarity of the two cases they relate to essentially different circumstances:

1. With us it is a question of *introducing a custom* contrary to religious practice and instinct; whilst in India *the custom exists* in form of a caste privilege to which the people are strongly wedded.

2. With us to *allow* such a practice would scandalize the faithful; in India it would scandalize the people to *forbid* it, and they would suspect the Christian missionaries of hostility to their established institutions.

3. With us a prohibition or censure is likely to be *effec-*

tive; in India it would have *no effect* except to rouse the populace to revolt against Christianity.

4. With us it is the avowed object of the advocates of cremation to substitute it for the ancient custom of religiously burying the dead; in India there is every endeavor and reasonable hope that with the progress of Christian teaching cremation will go out of use.

THE PROPOSED MARTHA INSTITUTE.

REVEREND EDITOR:—With considerable interest I have read the article of Rev. Thomas J. Jenkins, on A Training School for Parochial Housekeepers. It is certainly a novel view on an old but important subject. Being a Religious and therefore in no need of a housekeeper, I should perhaps refrain from offering an opinion. On the other hand it must be admitted that as a disinterested looker on, I am the more qualified to present at least an independent view. After sacerdotal duties, a most important subject to engage a priest's attention in temporals is:—How to procure a well trained house maid. Many a priest has had his trouble in this matter, and it is safe to say that those who have had trouble, will hail with joy the prospect of an institution to which they can apply for a reliable house servant. Undoubtedly there are many among the clergy who would not and could not have persons from such an institution as their servants, for the simple reason that they have relatives, mother or sister, to supply the needs of domestic help. For the majority of priests, however, certainly for a great number, the founding of an institution outlined by Rev. T. J. Jenkins, would be a real benefit. As a rule priests do not want to train their housekeepers, so-called. But what they do want and usually inquire for, is a reliable person who knows how to cook, understands how to keep household affairs in proper order, and is willing to take the entire responsibility of the parochial home upon her, for a just return of wages. The only reserve which a priest would be apt to insist on, is a warrant that the housekeeper will not meddle with the affairs of the congregation or the personal and private business of the clergy in the house.

It is often difficult to find such a person. There is at present a common complaint among *all classes* of society employing servants, that the number of good, reliable domestics is constantly decreasing. This state of things naturally affects clerical householders as well. Hence the novel project placed before the Public in the AMERICAN ECCLESIASTICAL REVIEW, is opportune and deserves the attention of those who might further it. The founding of such an institution would create a new avocation in religion, and open up a fresh field of permanent labor to many, whilst at the same time it would supply a seriously felt want, though heretofore not so openly expressed. But an institution of the kind would certainly have to be under ecclesiastical control, and governed by laws and statutes approved of by competent authorities.

It seems to me that the author of "A Training School for Parochial Housekeepers," bases his project on rather too narrow lines when he comes to the *modus operandi*. If I understand him rightly, he intends to found an institution to be called "Martha Institute." The object of this establishment is to train reliable housekeepers for priests in the United States. Probably its location is to be in Kentucky, and from thence all demands of the country will be supplied. If this be the case, I am of the opinion that it will prove a decided failure. I would suggest that one institution of the kind be established in each ecclesiastical Province of the country. The Ordinaries in each province would have to take the matter in hand in order to make it a success. A priest undertaking such a project, even with the approbation of his bishop, is apt to meet with many serious difficulties. Perhaps the best way to carry out the novel project of training housekeepers for the clergy, would be to give it in charge of already existing communities of religious. They could establish branch houses for that exclusive purpose. In this manner the object in view could be attained without the necessary trouble involved in creating a new religious society. If this latter mode be pursued, nearly each diocese, with a sufficiently large number of priests, could have its own nursery for such training. But let us have other suggestions on this subject. My sole purpose in writing this letter is to prevent a good idea from perishing at its birth. If the novel project live and be carried into effect, it will prove a lasting blessing to a large number of the clergy.

Yours truly,

J. A.—O.S.B.

THE BAPTISM OF BAPTISTS

IN ORDINE AD VALIDITATEM MATRIMONII.

Qu. Is the baptism of Baptists presumed to be valid for marriage?

Resp. Yes. The *fact* of the baptism being established, even if its *validity* be *doubtful*, confirms the validity of a subsequent marriage, provided there is no other impediment.

"Generatim loquendo, ut christiani habendi sunt ii, de quibus dubitatur, an valide baptizati fuerint.—Censendum est validum Baptisma in ordine ad validitatem Matrimonii." —*S. Offic. 9 Sept., 1868.*

RED CHASUBLE AND WHITE DALMATICS.

Qu. We had Solemn Pontificial Mass here recently. The rubric required *red* vestments. As we had no red chasubles I asked the Bishop whether we might use a *white* set instead, rather than omit the solemn function. He thought that, under the circumstances, it might be allowed. Afterwards he told me to send the doubt to the REVIEW. Would you kindly answer it?

Resp. No doubt the prudent judgment of a Superior would render a deviation from the ordinary rubric, in such cases, lawful. There is an instance, substantially the same as the above, to be found in the *Collectanea S. Congr. de Propag.*, in which the decision given was: Arbitris et prudentiae Vicarii Apostolici. (C. P. pro Sin. 27 Jul. 1850.)

THE LITANY "SS. NOMINIS."

Qu. In reciting the Litany "SS. Nominis" some conclude the final prayer with *Per Dominum nostrum* etc., others with *Qui vivis et regnas* etc. — Is it necessary to say the prayer at all, in order to gain the Indulgence, since no prayer is required with the Litany of Loretto?

Resp. The proper ending, according to the authentic Raccolta, is *Qui vivis et regnas in saecula saeculorum. Amen.* The prayer is *obligatory*, unlike that usually added to the Litany of Loretto.

BOOK REVIEW.

CHRIST IN TYPE AND PROPHECY.—By Rev. A. J. Maas, S. J., Prof. of Oriental Languages in Woodstock College, Md.—New York, Cincinnati, Chicago; Benziger Bros. 1893.

When St. John describes to us, in his Gospel, the life and work of the Messiah during the three years of His earthly sojourn, he reminds us at the very outset, not only that He was God, but that He was with God, as the Word to assume flesh in time. He saw the Root of Jesse when the seedling first developed its new life out of the mortification of Adam and Eve in Paradise, casting aside the shell of sin and sprouting through laborsome periods a fresh untainted life, one day to be the "arbor vitae," the tree carrying the most precious fruit of Redemption.

The entire Bible is thus nothing less than a history of the Messiah sketching all the stages of His growth through successive generations until He stands forth as the one all-absorbing figure of creation casting the light of His influence back to the first ages of mankind and forward to the end of time. The Jews realized this fact. The longing for the Redeemer was the one great passion of the devout Hebrew. Even the Pagans felt the influence of the Christ as a wise king, who somehow marked in their imagination a golden age long passed or far away; nay, one of them enlightened beyond the rest by the grace of inspiration and the divine gift of prophecy, Job, tells us: "I know that my Redeemer liveth." (Job, xix, 25.) The Christian sees the Messianic reign accomplished and in the light of the New Testament he understands the purpose of the Old Covenant which in so many ways foreshadowed the kingdom of Christ.

But whilst we know this to be the main scope of the S. Scriptures, we rarely read it with a realization in detail of all the incidents and words pointing out the images, long ago, of the "All Beautiful." This is to miss much of what is useful and interesting in the narratives and lessons of the Old Testament. In the first ages of Christianity the defenders of the Catholic faith appealed to the

Messianic prophecies of the Jewish Bible for confirmation of their belief in the actual advent of Christ. Thus conversions were wrought day by day from the children of Abraham, until the rabbins growing weary of having their interpretation of the Mosaic Covenant discredited, laid aside the version of the Bible used by the Jews in Palestine at the time of our Lord, and pretending to return to the ancient Hebrew text, which had gone out of memory for centuries, created a Masorah and various commentaries of the S. Text, less likely to favor the Christian argument. And the appeals to the Septuagint version against the Jews in the time of the early Apologists of our Catholic faith, have lost nothing of their original force against either Jew or Gentile of to-day, at least from the historical point of view. Beyond this the study of the Messianic character in the S. Scriptures of the Old Testament serves, as Father Maas says: "as a crutch for the feeble in the faith, as an overflowing fountain for the dogmatic theologian, as a topic for the preacher, as a meditation for the devout, as a series of interesting facts for the historian and the psychologist." (Pref.)

It is difficult to imagine a work more thoroughly done than this tracing of the Messianic idea in the Old Testament undertaken by our author. He first develops what has been styled the prophecy-argument, in its history and form. An interesting feature of the latter are the references to such sources as the Sibylline oracles, the apocrypha and the Talmudic and Rabbinic collections. The philosophical truth of the prophecies is clearly shown with just reference and refutation of the criticism of especially the great German biblical rationalists. Historic evidence is everywhere made to support the argument of the existence, the logical coherence, the supernatural character of divine inspiration and the interpretation of the Messianic prophecy. All this is only introductory to the principal subject in which the passages referring to the genealogy, birth, infancy and life work of the Saviour are given and explained with a minuteness of detail, critical skill and that judicious discrimination in disposition of his matter which proves that the scholar aims not at show, but has in mind the endeavor of being useful to his reader. In books of this kind, too, the devout mind of the writer is of special value and can never be without its direct influence in moving the will to follow the suggestions which arise from the contemplation of One whose sole purpose in revealing Himself was to enlighten every man that cometh into this world and to offer him the means of gaining peace of heart in following His teaching.

It would be difficult to single out any particular portion of the work which deserves the attention of the critic. Father Maas leaves us hardly anywhere a way open to object to his exposition, because he remains what the Germans call "objective" throughout. Even in such delicate undertakings as the explanation of the Danielic prophecy we can only applaud the practical wisdom of the author, who without neglecting the influence of many divergent streams of conjecture, arrives at a safe conclusion about the period of years and the nations referred to by the mysterious friend of the inspiring angel. The explanation of the seventh chapter of Isaiah is beautiful and exceptionally satisfactory. The same may be said of the interpretation throughout of the Messianic names.

Biblical scholars will be pleased to find that the author adds an appendix of some thirty pages in which a summary account is given of the Rabbinic Literature which plays so important a part in the discussion of the subject treated in the book. Some of these, such as Myer's *Sabbalah*, will be found to contain further and complete references to all the leading works required by the student.

"Christ in Type and Prophecy," forms one of the permanently valuable books of a theologian's library.

A TREATISE OF SPIRITUAL LIFE, Leading man by an easy and clear method from the commencement of conversion to the very summit of sanctity. Translated from the Latin of Mgr. Charles Jos. Morozzo, Cistercian Abbot, and Bishop of Bobbio. Very Rev. D. A. Donovan, O. Cist.—Poplar Bluff, 1893. Published by the author.

In reviewing, some years ago, the Latin edition of this work, so eminently helpful to the priest in his spiritual life, we pointed it out as a book that might serve, in an important branch of moral theology, as a text-book for seminaries no less than a valuable compass by which the director of souls could ever measure his true bearing amid the storms of his active mission. Now that the thoughtful zeal of a priest, trained in the same monastic school as the writer of the book, offers us an English translation, we appreciate doubly its great practical value. Who of us can dare to do the work of saving souls in this nineteenth century, with its complicated modes of self-worship and self-deceit, with its captious advertisements of cant and flattery fearing no longer to invade the sanctuary, —unless he know the secrets of the spiritual warfare by earnest

study and battle with his own inmost soul? Yet this study, this battle, cannot be undertaken without a guide. If ever there was a truth approved by commonest experience it is this: "That no one is endowed with such prudence and wisdom as to suffice for himself in the spiritual life." Yet it is easy enough to blind one's self to this fact, to settle down to a life of present ease, forgetful that we cannot shirk the battle without forfeiting the victory, and finding ourselves in miserable darkness and bondage at the last waking. Thus our intellectual convictions and the truths taught by the constant default of others lose their force in the habitual yielding to the weakness of nature. We need a master who continually holds up before us the awful danger of letting ourselves go down; who plies us not only with motives and arguments apt to persuade the will in striving ahead, but who urges the weary limb with the rod of wholesome fear; to make exertion when sitting down in our benumbed condition would mean certain death.

Our Cistercian proves a first-rate guide. His precepts are reasonable, given in right order, and pithily summed up so as to lodge readily in the mind. He analyzes man in his ordinary state of weakness and sin; shows him what he is bound to, and how much he is capable of, under a right management of himself, warns him of every danger within and without, and lays before him every resource of which he may avail himself to reach securely that region of acquired habits in order and virtue, where the soul feels no longer the dragging weight of the body, which is attracted to the earth only in proportion to its actual nearness to it.

Let us give an instance of how the author presents his lessons in the spiritual life. After having sketched the actual condition of the soul recognizing the necessity of a more perfect spiritual life, and having shown what sort of serenity the impulse to be better, if followed, leads to, he insists upon our viewing closely and fighting with determination the various impediments that beset our path at the beginning. P. Morozzo enumerates twelve principal defects barring the gate of the spiritual life. The first, easily recognized because of its general character, is an inordinate love of self which affects the mind with various images, distracting and disturbing it. This inordinate love shows itself in attachment to money, clothes, books, furniture, to such an extent that we should bear their loss with chagrin.

2. Inordinate delight in food, drink, conversation, jesting, familiarities and such amusements as appeal to the scenes mainly.

3. An over anxiety to avoid temporal and material losses, also an eagerness to escape the troubles which come from the warnings of our conscience and the humiliations which result from sin. On the other hand, a seeking of personal advantage, of popularity, of sensible devotion.

4. An elation of mind which shows itself in arrogance, in an assumption of moral superiority and a sense of condescension.

5. Human respect when it influences habitually our actions.

6. Tenacity of our own opinion and a morbid effort to bring others to our way of thinking and acting, where we are not responsible for the results.

7. Neglect to take account of our ordinary defects, such as a disposition to anger, envy, rash judgments, etc.

8. Indolence and sloth in the performance of spiritual duties.

9. Undue solicitude about the success of our temporal affairs.

10. Scrupulosity and continual harrowing of conscience with attempts to soothe the same by frequent confessions.

11. Excessive application to intellectual work where the mind is exclusively engaged in speculation, whether about sacred or profane sciences.

12. Laying more stress, in the performance of good works, upon their number than upon a pure intention, so as to become involved with a multiplicity of things, which however good, dissipate and unsettle interior recollection. "He that is less in action shall receive wisdom."—(Eccl. xxxviii, 25.)

In such fashion our author groups his thoughts throughout the work, setting forth the sins, pointing out difficulties and their remedies, and leading the will by easy steps of enlightened persuasion to that harmony of the soul with the will of God, which is the essence of true peace and joy even on earth.

The translator has thought it expedient to adhere as closely as possible to the language of the original. This course is probably to be recommended as a guarantee of orthodoxy in the case of works treating of such delicate themes as are involved in the analysis of the spiritual life. In a few instances it has led to obscurities in expression which could have been avoided. Sometimes the terms are not happily selected. Thus, "De mortificatione ejusque usu" of the original (P. I, cap. xii) would be more accurately rendered by "The practice of mortification," than by "Mortification and its utility," all the more since the author does not speak in that chapter of the profit which the soul derives from